

Service Manual

PIONEER
The Art of Entertainment

• DEH-790SDK/WG



ORDER NO.
CRT1451

HIGH-POWER COMPACT DISC PLAYER WITH FM/AM TUNER

DEH-790SDK

WG

DEH-790

EW, X1B

DEH-690SDK

WG

DEH-690

EW, X1B

COMPACT
disc
DIGITAL AUDIO

• See the service manual DEH-M980/UC (CRT1450) for the CD mechanism description and circuit description.

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SAFETY INFORMATION (EW MODEL)

1. Safety Precautions for those who Service this Unit.

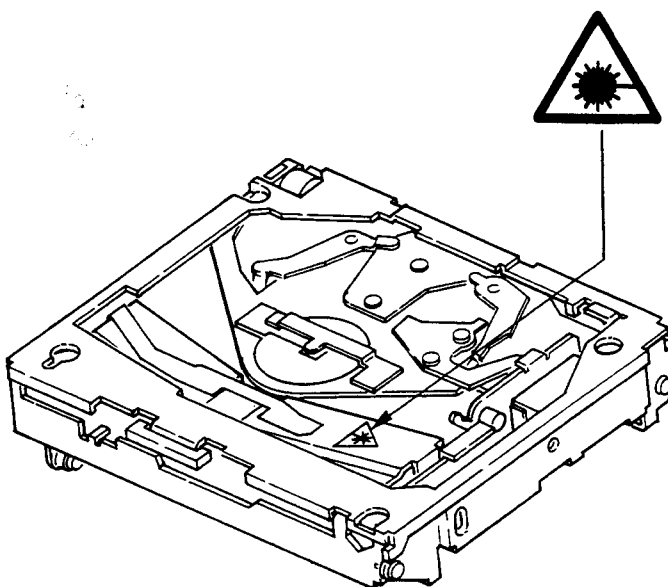
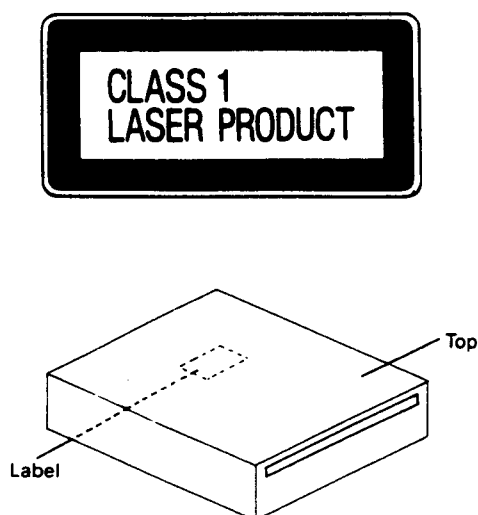
- Follow the adjustment steps(see pages 14 through 33)in the service manual when servicing this unit. When checking or adjusting the emitting power of the laser diode exercise caution in order to get safe, reliable results.

Caution:

1. During repair or tests, minimum distance of 13cm from the focus lens must be kept.
2. During repair or tests, do not view laser beam for 10 seconds or longer.

2. A "CLASS 1 LASER PRODUCT" label is affixed to the bottom of the player.

3. The triangular label is attached to the mechanism unit arm unit.



4. Specifications of Laser Diode

Specifications of laser radiation fields to which human access is possible during service.

Wavelength = 785 nanometers
 Radiant power = 69.7 microwatts
 (Through a circular aperture stop
 having a diameter of 80 millimeters)

0.55 microwatts
 (Through a circular aperture stop
 having a diameter of 7 millimeters)

1. SPECIFICATIONS

General

Power source	14.4 V DC (10.8 – 15.6 V allowable)
Grounding system	Negative type
Max. current consumption	5.5 A
Dimensions (chassis)	180(W) × 50(H) × 150(D) mm
(front face)	188(W) × 58(H) × 18(D) mm
Weight	1.5 kg

Amplifier

Max. power output	30 W × 2 (EIAJ)
Continuous power output	14 W × 2 (1 % dist. at 1 kHz)
Load impedance	4 Ω (4 – 8 Ω allowable)
Nominal output level/ output impedance (pre out)	500 mV/1 kΩ
Tone controls (bass)	±12 dB (100 Hz)
(treble)	±12 dB (10 kHz)
Loudness contour	+10 dB (100Hz), + 6.5 dB (10 kHz) (volume: – 30 dB)

CD player

System	Compact disc audio system
Usable discs	Compact disc
Signal format	Sampling frequency: 44.1 kHz Number of quantization bits: 16; linear
Frequency characteristics	5 – 20,000 Hz (±1 dB)
Signal-to-noise ratio	94 dB (1 kHz) (IEC-A network)
Dynamic range	90 dB (1 kHz)
Number of channels	2 (stereo)

FM tuner

Frequency range	87.5 – 108 MHz
Usable sensitivity	11 dBf (1.0 μV/75 Ω, mono, S/N: 30 dB)
50 dB quieting sensitivity	16 dBf (1.7 μV/75 Ω, mono)
Signal-to-noise ratio	70 dB (IEC-A network)
Distortion	0.3 % (at 65 dBf, 1 kHz, stereo)
Frequency response	30 – 15,000 Hz (± 3 dB)
Stereo separation	40 dB (at 65 dBf, 1 kHz)

MW tuner

Frequency range	531 – 1,602 kHz
Usable sensitivity	18 μV (25 dB) (S/N: 20 dB)
Selectivity	50 dB (± 9 kHz)

LW tuner

Frequency range	153 – 281 kHz
Usable sensitivity	30 μV (30 dB) (S/N: 20 dB)
Selectivity	50 dB (± 9 kHz)

Note:

Specifications and the design are subject to possible modification without notice due to improvements.

• Parts Identification

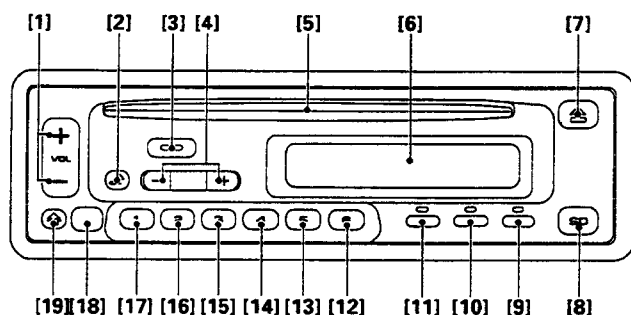


Fig. 1

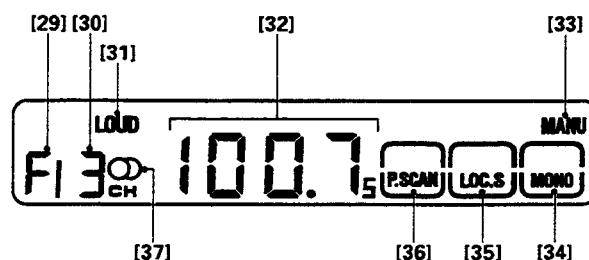


Fig. 3

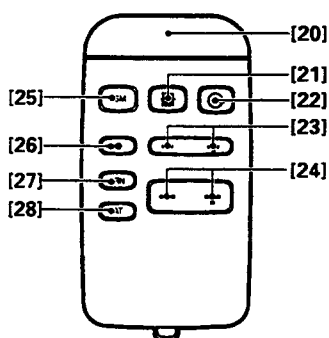


Fig. 2

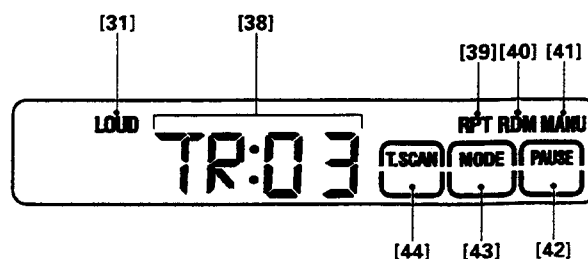


Fig. 4

2. ADJUSTING VOLUME AND TONE

Parts Identification (Fig. 1)

- [1] Volume/ Audio adjustment
- [2] Shift/Loudness
- [3] Illumination switch
- [5] Disc Insertion Slot
- [6] Display
- [7] Eject
- [8] Source selector

Switching Power On

Tuner

Press button [8] to switch the tuner power on. Press button [8] again to switch the power off.

CD Player

When a disc is inserted half-way into the disc insertion slot [5] with its label side upward, the disc is automatically loaded and played. To remove the disc, push button [7].

Changing the source

To change the source, push button [8] with the disc inserted in the slot.

At each press of the button, the source changes as follows: CD player → Tuner → OFF.

Adjusting Audio

Press button [1] to adjust the volume. Each press of button [2] changes the display and the function of button [1] as follows:

Volume → Fader → Bass → Treble → Balance

Adjusting Volume

Pressing the (+) side of button [1] increases the volume, while the (-) side decreases it. (Display shows "V-00" ~ "V-30".)

- *When driving your vehicle, be sure to keep the volume of the unit set low enough to allow you to hear sounds coming from outside.*

Adjusting the Fader

Balancing the sound volume between the front and rear speakers.

Gradually transfer the sound to the front speaker by holding down the (+) side of button [1]. Gradually transfer the sound to the rear speaker by holding down the (-) side of button [1].

(Display shows "F-R9" ~ "F-F9".)

- Please set "F-0" when using a 2-speaker system.

Adjusting Bass

Pressing the (+) side of button [1] increases bass, while the (-) side decreases bass.

(Display shows "BS-6" ~ "BS+6".)

Adjusting Treble

Pressing the (+) side of button [1] increases treble, while the (-) side decreases treble.

(Display shows "TR-6" ~ "TR+6".)

Adjusting Balance

Pressing (+) side of button [1] shifts the balance to the left speaker, while the (-) side shifts it to the right speaker.

(Display shows "B-R9" ~ "B-L9".)

- *When you're adjusting fader, bass, treble, or balance settings, the indicator will stop at the center setting. About 5 seconds after adjustment has been made, the display returns to its previous state.*

Using the Loudness Function

Press button [2] for about 2 seconds and the "LOUD" indication will appear on the display. This loudness function lets you enhance both high and low frequencies to give a more natural sound at low volumes. To cancel this function, press button [2] again for about 2 seconds.

Switching Illumination Colour

Pressing button [3] for more than 2 seconds causes the illumination color to switch between green and amber.

3. USING THE RADIO

Parts Identification

Fig. 1

- [3] Band
- [4] Tuning/Local seek sensitivity/Seek, Manual
- [6] Display
- [8] Source selector
- [9] FM stereo/Mono
- [10] Local station
- [11] Preset scan/Best stations memory (BSM)
- [12]-[17] Preset

Fig. 3

- [29] Band
- [30] Preset number
- [32] Frequency
- [33] Manual
- [34] FM mono
- [35] Local station
- [36] Preset scan
- [37] FM stereo

Listening to the Radio

1. Turn on the tuner's power by pressing button [8].

Each time the button is pushed the main unit switches between tuner and power off modes.

- This operation will differ if there is a CD inserted in the CD player. Refer to the section on the source switch on page 5 for details.

2. Press Button [3] to select a band.

F | **F** | **F** | **M/L**
(FM1) (FM2) (FM3) (MW/LW)

Use button [4] to switch between MW (531-1,602 kHz) and LW (153-281 kHz).

3. Use seek tuning to tune in a frequency.

Ensure that "MANU" [33] is not indicated on the display. (If so, turn it off by simultaneously pressing the (+) and the (-) sides of button [4]).

Press either the (+) side or the (-) side of button [4]. When the (+) side is pressed, the tuner will automatically receive high frequencies.

When the (-) side is pressed, it will automatically receive low frequencies.

4. Adjust volume and tone (see page 5).

5. Assign the tuned frequency to one of the Buttons in Bank [12]~[17] (preset memory).

Press and hold down one of the buttons in Bank [12]~[17] for at least 2 seconds. The frequency is assigned to the selected button when the preset number [30] stops flashing on the display. Up to 18 FM stations (6 each for FM1, FM2 and FM3), and six MW/LW stations can be assigned to the preset memory buttons in Bank [12]~[17].

6. Once a frequency is assigned to a Button in Bank [12]~[17], you just need to press that Button to tune it in.

This also causes the number of the button pressed to appear at Position [30] on the display.

Adjusting Seek Sensitivity

The seek tuning function of this tuner lets you select between a local setting for reception of strong stations only, and a DX (distant) setting for reception of weaker stations. The local setting also has 4 seek tuning sensitivity levels for FM and 2 levels for MW/LW to match local conditions.

Changing the Local Seek Sensitivity

1. Use button [3] to select a band.
 2. Hold down the button [10] for more than 2 seconds, and the display will show you the current local seek sensitivity (Example: "LOC-2") for about 5 seconds.
 3. While the local seek sensitivity remains on the display, press the (+) side of button [4] to increase the sensitivity level, and the (-) side to decrease the level as shown below.
FM : LOC-1 = LOC-2 = LOC-3 = LOC-4
MW/LW: LOC-1 = LOC-2
The LOC-4 setting allows reception of only the strongest stations, while lower settings let you receive progressively weaker stations.
- The display of local seek sensitivity returns to the frequency when about 5 seconds have elapsed after the change of sensitivity.

Switching between Local and DX


Press button [10] to switch between Local and DX (distant) seek tuning. When the frame of local seek [35] is lit, seek tuning is performed with the local seek sensitivity. Otherwise, seek tuning is performed with the DX seek sensitivity.

Manual Tuning

Use manual tuning when stations are too weak to be picked up by seek tuning.


1. Turn on "MANU" [33] by simultaneously pressing the (+) side and the (-) side of button [4].
2. Each press of the (+) side of button [4] increases the frequency in 50 kHz steps in the FM band, 9 kHz in the MW band and 1 kHz in the LW band. Pressing the (-) side of button [4] decreases the frequency. Holding down either side of button [4] changes the frequency at high speed.

Switching between FM Stereo and Mono

Generally, it is best to allow the ARC (Automatic Reception Control) function to automatically set the optimum listening conditions.  [37] turns on during stereo broadcast is in reception. When there is a large amount of noise, you can press button [9] for clearer mono reception (The frame of FM mono [34] turns on).

BSM (Best Stations Memory)

This function automatically locates stronger stations and automatically assigns their frequencies to the buttons in Bank [12]~[17], from strongest to weakest. It comes in handy when trying to find local stations while driving.

1. Press button [3] and select a band.
 2. Hold down button [11]. After about 2 seconds, a "beep" will sound to signal that the BSM search has started. At this time, "BSM" will flash on the display.
 3. The frequency display will return once BSM search is complete, and frequencies are assigned to buttons 1 through 6 in Bank [12]~[17].
- At the end of the BSM search, the displayed frequency is that assigned to button  of Bank [12]~[17].
 - You can cancel BSM search by pressing button [11] again.
 - If there are fewer than 6 strong stations in the area, some of the buttons in Bank [12]~[17] will not be assigned frequencies, so they will retain any frequencies assigned to them previously.
 - BSM search may take as long as 30 seconds in areas where there are few strong stations.

Preset Scan Tuning

This function lets you automatically monitor the stations assigned to the preset buttons.

1. Pressing button [11] turns on the frame of preset scan [36] and flashes preset number [30].
Each station assigned to the buttons in Bank [12]~[17] will be automatically tuned in for about 8 seconds.
2. When you hear a station that you like, press button [11] again to cancel preset scan tuning and remain at that station.

4. PLAYING COMPACT DISCS

Parts Identification

Fig. 1

- [4] Track number search/
Fast forward, Reverse
- [5] Disc insertion slot
- [6] Display
- [7] Eject
- [8] Source selector
- [9] Pause
- [10] Mode
- [11] Highlight scan

Fig. 4

- [38] Track number
- [39] Music repeat
- [40] Random play
- [41] Manual
- [42] Pause
- [43] Mode
- [44] Highlight scan

Discs

- Only use compact discs (optical digital audio discs) bearing the mark shown below. (Fig. 5)



Fig. 5

- Be sure never to touch the signal surface when handling discs. Pick up discs by grasping the outer edges or the edge of the hole and the outer edge. (Fig. 6) (Fig. 7)

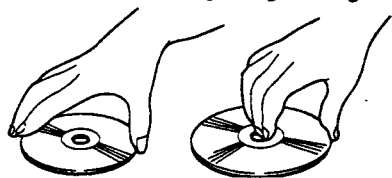


Fig. 6

Fig. 7

- Do not affix paper or tape, and avoid scratching the side of the disc which contains the label (contents of disc).
- The disc revolves at high speed within the player unit, so defective (cracked or badly bent) discs should not be used.
- Dust and/or finger smudges will have no direct effect on the signal recorded on the disc, but dirt can decrease the amount of light reflected from the recorded surface, thus affecting sound quality. If the disc should become soiled, gently wipe the surface with a soft lint-free cloth, wiping from the center of the disc to the edge. (Fig. 8)

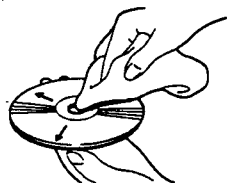


Fig. 8

- Do not use record sprays or antistatic agents. Such volatile chemicals as benzene and thinner can also damage the surface of the disc and should not be used.

- As with traditional audio records, compact discs are made of plastic. To avoid warping, keep the discs in their cases and do not store them in places exposed to direct sunlight.

Listening to the Compact Disc

1. On inserting the CD, with the label side up, half way into the CD slot [5], it will automatically be set into position and start to play.

The track number [38] indicator will light.

2. Adjust volume and tone (see page 5).

3. To stop CD playback, press button [8] turning the power off.

Pressing the button will change the source as follows: CD Player — Tuner — OFF.

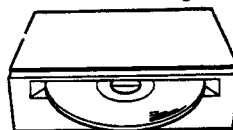
Press button [8] again to restart playback. It will play from close to where it was previously stopped.

4. To remove or change discs, press button [7].

When the disc is ejected, pressing it will cause it to be set into position again, and playback to start.

Note:

- In order to protect the disc, eject it after it has stopped rotating. The timing of ejection may differ according to the disc.
- If a disc can only be inserted halfway, or if the disc does not play after being loaded, something may be wrong with the disc. Eject the disc by pressing button [7], and check it. If it is all right, insert it again.
- Insert the disc with its label (printed) side facing up. If the disc is inserted with the label side facing down, it will not play, and the recorded side may be damaged.
- Do not insert 2 discs into the slot at the same time. This may cause a malfunction.
- Do not leave an ejected disc in the insertion slot for extended periods since direct sunlight can cause warping. Always return discs to their cases and store in areas not exposed to direct sunlight.



Discs should not be left like this for extended periods.

- Do not leave an ejected 8-cm CD in the slot while driving. The vibration may make it drop out.
- When driving on an uneven road, the player may not reproduce every sound properly.

Condensation

- During winter the inside of the vehicle may be very cold. If the heater is turned on and the player is used soon after, the disc or optical parts (prism, lens, etc.) may become misted up. If the disc is misted up, wipe it with a soft cloth. If the optical parts are misted up, wait for about an hour for them to warm up. They will return to their normal condition.

Track Number Search

The desired track on the disc currently being played can be selected by track (or song) number.

1. Ensure that "MANU" [41] is not indicated on the display. If so, turn it off by simultaneously pressing the (+) side and the (-) side of button [4].
2. Use the button [4] to select a track. Pressing the (+) side increases the track number [38], and pressing the (-) side decreases it. Holding the button down continuously increases or decreases the track number.

Using Fast Forward and Reverse

1. Press simultaneously both (+) and (-) sides of the button [4] "MANU" [41] will appear on the display. At this time the display will show the amount of elapsed disc play time (Example: "01'05").
2. Press the (+) side of button [4] for fast forward, and the (-) side for reverse.
 - Sound is output during fast forward and reverse operations.
 - When a disc in which there are several seconds between tracks is used, the amount of elapsed disc-play time is shown, for example, as "-02'", "-01'" and "-00'".

Pausing

1. Press button [9] to pause during disc playback (Track number [38] will change to "----", and "PAUSE" [42] frame appears).
 2. Press button [9] again to release pause.
 - It is possible to select music even during pause by using the track number search ("----" [38] will change to Track number, and "PAUSE" [42] frame turns off while the music is being selected).
- When the selection is completed, the playback will be paused at the beginning of the music.

Using Highlight Scan

Highlight Scan is designed to enable you to conveniently scan all pieces of music contained in the disc by playing 10 seconds each at your designated point of time after the start of the music. The starting time of play is set at one minute in factory.

Therefore, the Highlight Scan begins one minute after the start unless you designate it otherwise.

When you do not want to change the factory-set time:

1. Pressing Button [11] turns on the frame of Highlight Scan [44].
2. The contained pieces of music will be played in sequence for 10 seconds each one minute after the beginning.
3. Press Button [11] again when your selected piece comes, and it will continue to play. At this point, the Highlight Scan discontinues to operate.
 - The previous function automatically resumes when a piece of music with which Highlight Scan began returns.

Changing the Starting Time of Highlight Scan

When you want to set the starting time of the Highlight Scan to 30 seconds:

1. Indicate "MANU" [41] on the display by simultaneously pressing the (+) side and the (-) side of button [4].
2. Keep pressing either (+) or (-) side of Button [4] until the numerals reaches 30.
3. Pressing Button [11] for 2 or more seconds, turns on the frame of Highlight Scan [44].

Highlight Scan will begin 30 seconds after the start of the next piece of music.

- The starting time of Highlight Scan can be designated at ten or tens of seconds only. A tenth or tenths of seconds can be disregarded.
- If a piece of music ends before your designated point of time at which Highlight Scan starts, the scanning is performed for its beginning 10 seconds.
- If a piece of music lasts less than 10 seconds, so does the Highlight Scan.
- You may wish to change the starting time longer without suspending the function. You may do so, however, only to a relatively long-playing piece of music because, as a matter of course, the time cannot be set so as to come after the end of the music.

Using Music Repeat and Random Play

Each Press of button [10] causes the mode to change as follows: Music Repeat, ("RPT" [39] and "MODE" [43] frames appear.) → Random Play ("RDM" [40] and "MODE" [43] frames appear) → Normal ("MODE" [43] frame turns off).

Music Repeat

1. To repeat the music you are listening to, select the repeat mode ("RPT" [39] appears).
 2. To cancel music repeat, press button [10] to turn off "RPT" [39].
- When music repeat is not operational, the whole disc will be played repeatedly.

Random Play

1. To play music randomly, select the random play mode ("RDM" [40] appears). Once the current track has been played, the microprocessor will randomly select the next and subsequent tracks.
 2. To cancel random play, press button [10] to turn off "RDM" [40].
- Since selections are played in random order, the same selection may be played twice in succession.

5. USING THE REMOTE CONTROL

Note:

Remote control is only available on DEH-790. DEH-690 does not have remote control function.

[18] Remote control sensor

[20] Transmitter

[21] Tuner

The tuner is selected. Pressing again turns off the power.

[22] CD

When a disc is inserted in the built-in CD player, the unit will switch to disc play mode. Pushing the button once again turns the power off.

[24] Volume

Press the (+) side to increase volume and the (-) side to decrease volume.

[27] Learn Button

Takes on the function of the button operation recorded with the learning function. Refer to the "Learning Function" section for details.

[28] Attenuator

Press to reduce the volume to 1/10 of its current setting (volume display flashes). Pressing again returns the volume to its original level.

- This function is available using the remote controller unit only.

Operating the Tuner

[23] Preset Channel

Press to tune the frequencies assigned to the preset button memory. Pressing the (+) side tunes in the next high preset button number, while (-) tunes in the next lower preset button number. The preset number changes at high speed when you hold either side of this button down.

[25] Best Stations Memory

Hold on this button for about 2 seconds, and you will hear a beep and see Best Stations Memory start.

[26] Band

Band changes.

F I → F II → F III → M/L
(FM1) (FM2) (FM3) (MW/LW)

Operating the CD Player

[23] Track Number Search

Press to search for a selection (track number) on the current disc. Press the (+) side to increase the track number on the display, and the (-) side to reduce the track number. Holding down either side of this button changes the track number at high speed.

Learning Function

Records one button from the main unit on the remote control's learn button. This can be convenient when a button which is used often is recorded.

1. While playing the CD, press button [10] on the main unit for about 2 seconds, until a beep is emitted. "LRN" will be displayed on the display.

- While the radio is on, the button can not be recorded on to the remote control's learn button.

2. Press the button on the main unit that you want to use on the remote control.
 3. Press the learn button [27] on the remote controller unit. The main unit button recorded can now be used from the remote control.
- Perform button recording while "LRN" is displayed. If about 5 seconds pass without a button being recorded, the "LRN" display will clear, and the previously recorded button will remain in memory.

6. USING THE CLOCK DISPLAY

Parts Identification (Fig. 1)

[6] Display

[9] Clock

[16] Minute Adjustment

[17] Hour Adjustment

Displaying the Time

The clock is displayed when button [9] is pressed (for more than 2 seconds) till it beeps. Following the same procedure will turn off clock display.

- The clock display can be used only when the main unit is in operation.
- When the clock display is ON, pressing other buttons will release the clock display. The display will be restored approximately 25 seconds after the button operation has been completed.

Adjusting the Time

Adjusting the Hours

Press button [9] till it beeps (for more than 2 seconds). While pressing button [9], press button [17] simultaneously to adjust the hour setting of the clock. Each press of button [17] advances the hour setting by one hour, and holding it down advances the setting at high speed.

Adjusting the Minutes

Press button [9] till it beeps (for more than 2 seconds). While pressing button [9], press button [16] simultaneously to adjust the minute setting of the clock. Each press of button [16] advances the minute setting by one minute, and holding it down advances the setting at high speed.

7. DISASSEMBLY

• Removing the Case Assy

1. Remove the three screws.
2. Insert and turn a flat screwdriver to remove the case.
3. Raise the case to remove.

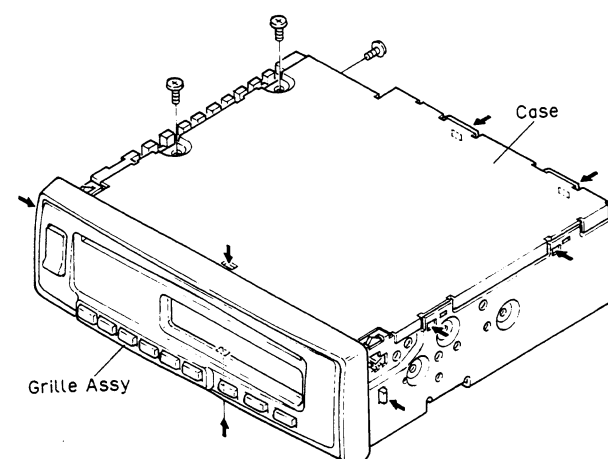


Fig. 9

• Removing the Grille Assy

1. Press the tabs at four locations indicated by arrows, and then pull out the grille assy. (Fig.9)
2. Disconnect the connector.

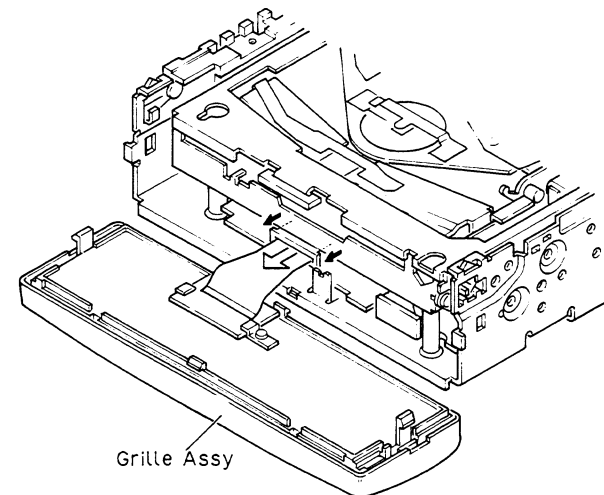


Fig. 10

• Removing the Display Unit

1. Remove the four screws A.
2. Press the tabs at four locations indicated by arrows, and then raise the cover to remove.
3. Remove the two screws B.
4. Press the tabs at two locations indicated by arrows, and then raise the display unit to remove.

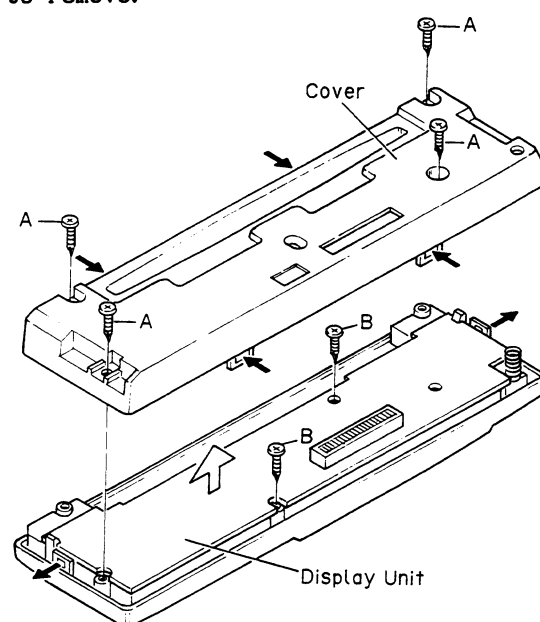


Fig. 11

• Removing the CD Mechanism Module

1. Disconnect the connector.
2. Remove the four screws, and then remove the CD mechanism module.

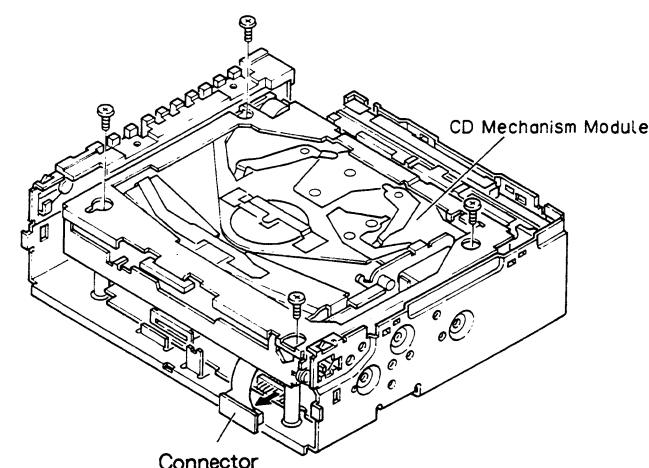


Fig. 12

• Removing the Tuner Amp Unit

1. Remove the five screws C and four screws D.
2. Remove the heat sink.
3. Remove the screw E.
4. Remove the screw F, and then remove the holder.
5. Unbend the tabs at four locations indicated by arrows until straight.
6. Raise up on tuner amp unit to remove it from the chassis unit.

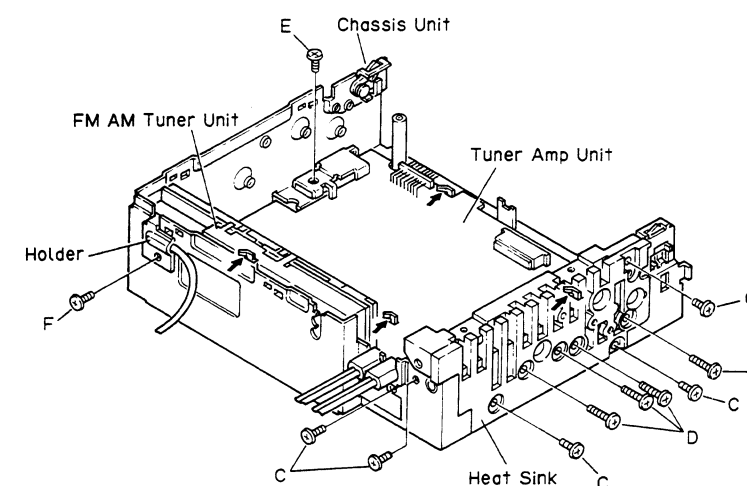


Fig. 13

8. BLOCK DIAGRAM

• DEH-790SDK

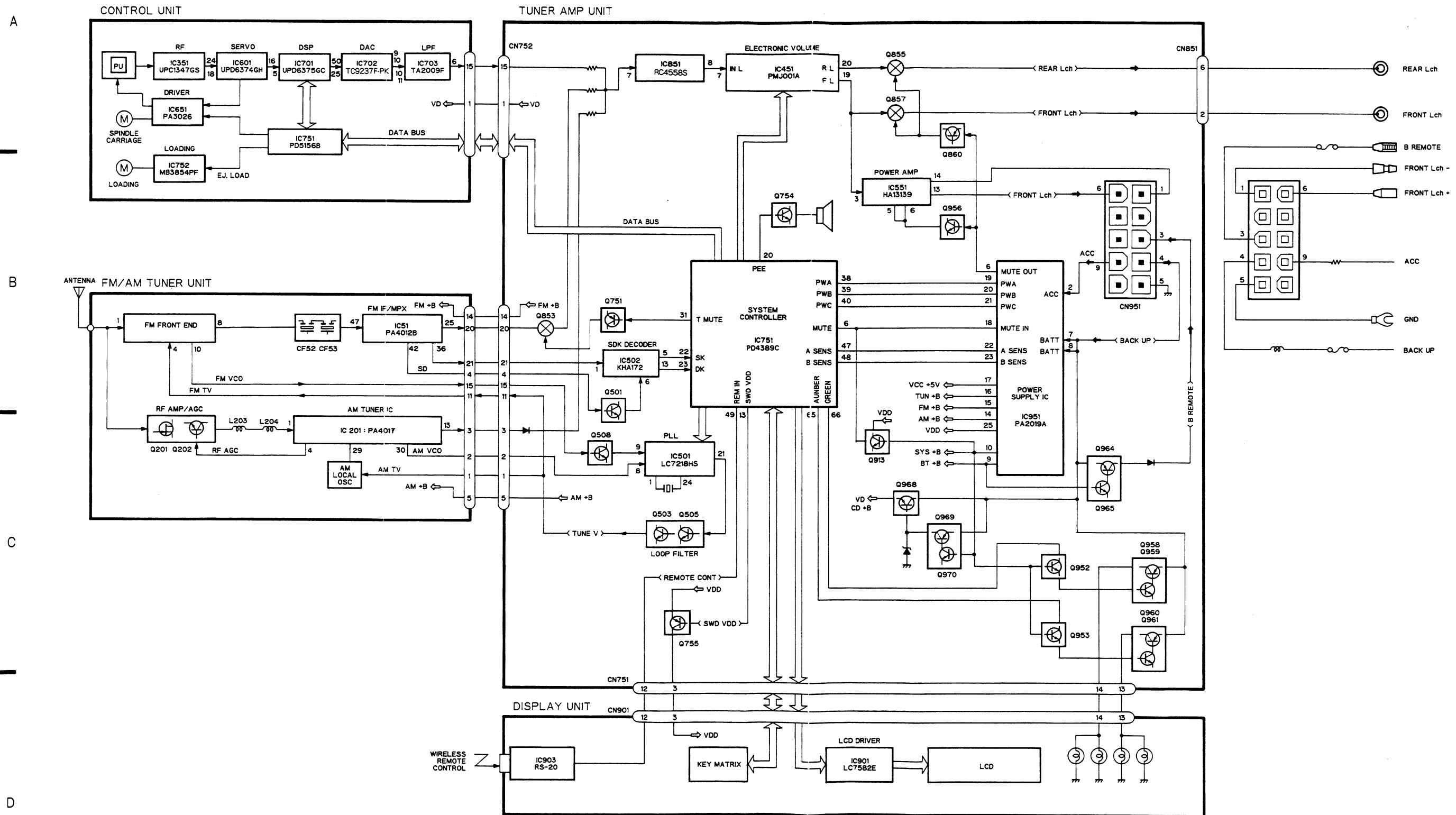


Fig. 14

9. CONNECTING THE UNIT



Fig. A

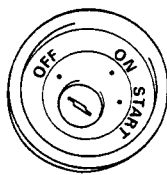


Fig. B

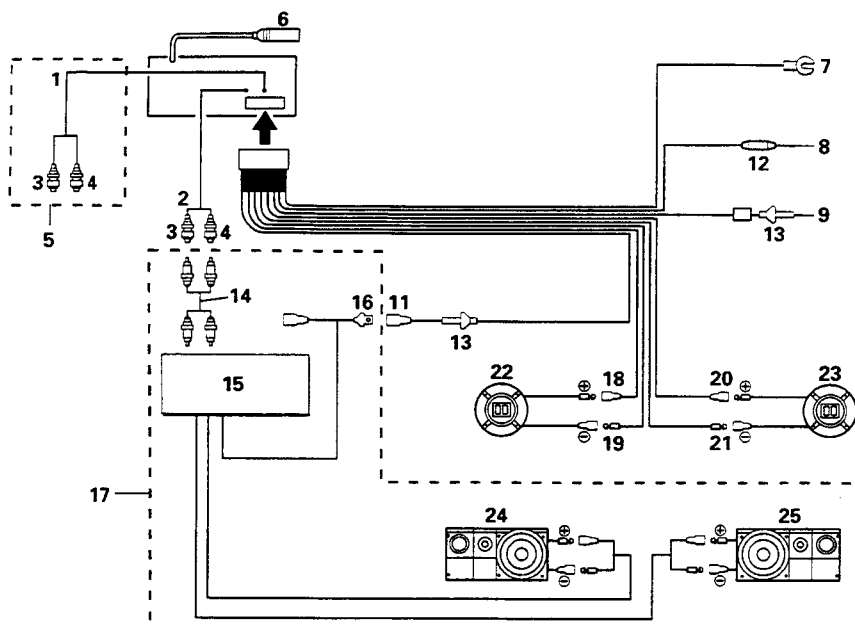


Fig. 15

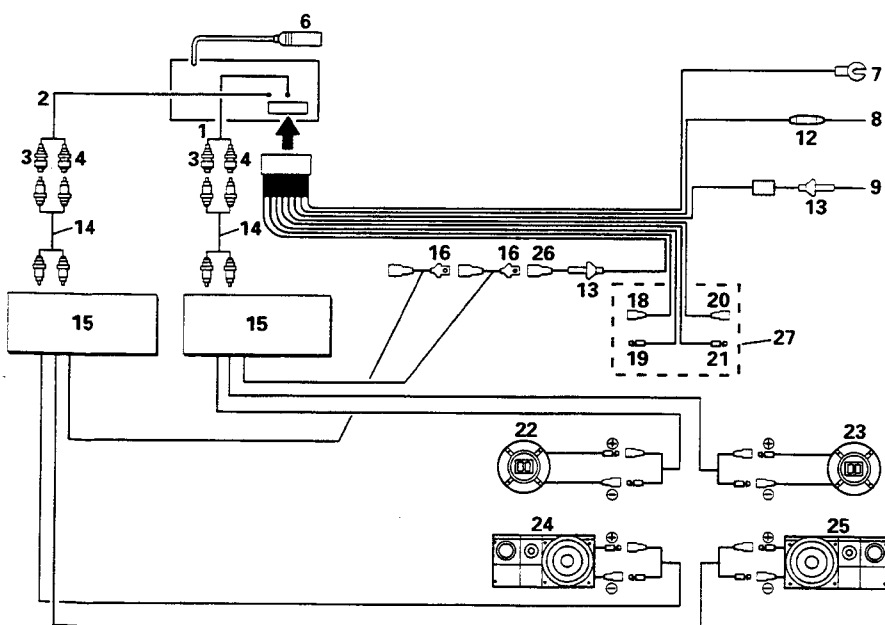


Fig. 16

Note:

- Before making final connections, make temporary connections then operate the unit to check for any connecting cord problems.
- Refer to the owner's manual for details on connecting the various cords of the power amp and other units, then make connections correctly.
- Be sure to connect the memory power supply lead (orange) to a terminal that is always supplied with power regardless of the vehicle's ignition switch position. If this connection is made incorrectly or is forgotten, the unit will not work at all.
- Don't pass the orange lead through a hole into the engine compartment to connect to the battery. This will damage the lead insulation and cause a very dangerous short.
- Since a unique BPTL circuit is employed, never wire so the speaker leads are directly grounded or the left and right speaker \ominus leads are common.
- Speakers connected to this unit must be high-power types possessing minimum rating of 30W and impedance of 4 to 8 ohms. Connecting speakers with output and/or impedance values other than those noted here can damage the speakers.
- When the unit is mounted in a vehicle whose ignition switch does not have the ACC (accessory) position as shown in Fig. B, be sure to connect the red lead of the unit to the terminal controlled by the ignition switch ON/OFF position. If you do not, the vehicle battery may go flat when you leave your vehicle for several hours.

ACC position (Fig. A)

No ACC position (Fig. B)

2/4-speaker system (Fig. 15)

- When using only a single power amp (sold separately), connect the rear output cord to the main amp. (DEH-790SDK and DEH-790)

External 4 channel amp system (DEH-790SDK and DEH-790)

(Fig. 16)

- Optional front speakers can be connected as illustrated with in the "-----", to make it a 6-speaker system. In this case, fader function of this unit will control the volume balance between the 4 front speakers and the 2 rear speakers.

1. Front out
2. Rear out
3. Red
4. White
5. No connection in this type of system. (These leads are included with the DEH-790SDK and DEH-790.)
6. Antenna jack
7. Black (ground) To vehicle (metal) body.
8. Red To electric terminal controlled by ignition switch (12 V DC) ON/OFF.
9. Orange To terminal always supplied with power regardless of ignition switch position.
11. Blue To system control terminal of the power amp (4-speaker system) or Auto-antenna relay control terminal (Max. 300 mA 12 V DC).
12. Fuse resistor
13. Fuse holder
14. Connecting cords with RCA pin plugs (sold separately)
15. Power amp (sold separately)
16. Blue
17. Not connected to anything for 2-speaker system.
18. Green
19. Green/Black
20. Gray
21. Gray/black
22. Front/left speaker
23. Front/right speaker
24. Rear/left speaker
25. Rear/right speaker
26. Blue To system control terminal of the power amp.
27. No connection in this type of system.

10. ADJUSTMENT

1)Precautions

- This unit uses a single power supply (+5V) for the regulator. The signal reference potential, therefore, is connected to REFOUT (approx. 2.5V) instead of GND.

If REFOUT and GND are connected to each other by mistake during adjustments, not only will it be impossible to measure the potential correctly, but the servo will malfunction and a severe shock will be applied to the pick-up. To avoid this, take special note of the following.

Do not connect the negative probe of the measuring equipment to REFOUT and GND together. It is especially important not to connect the channel 1 negative probe of the oscilloscope to REFOUT with the channel 2 negative probe connected to GND.

And since the frame of the measuring instrument is usually at the same potential as the negative probe, change the frame of the measuring instrument to floating status.

If by accident REFOUT comes in contact with GND, immediately switch the regulator or power OFF.

- Always make sure the regulator is OFF when connecting and disconnecting the various filters and wiring required for measurements.
- Before proceeding to further adjustments and measurements after switching regulator ON, let the player run for about one minute to allow the circuits to stabilize.
- Since the protective systems in the unit's software are rendered inoperative in test mode, be very careful to avoid mechanical and/or electrical shocks to the system when making adjustment.

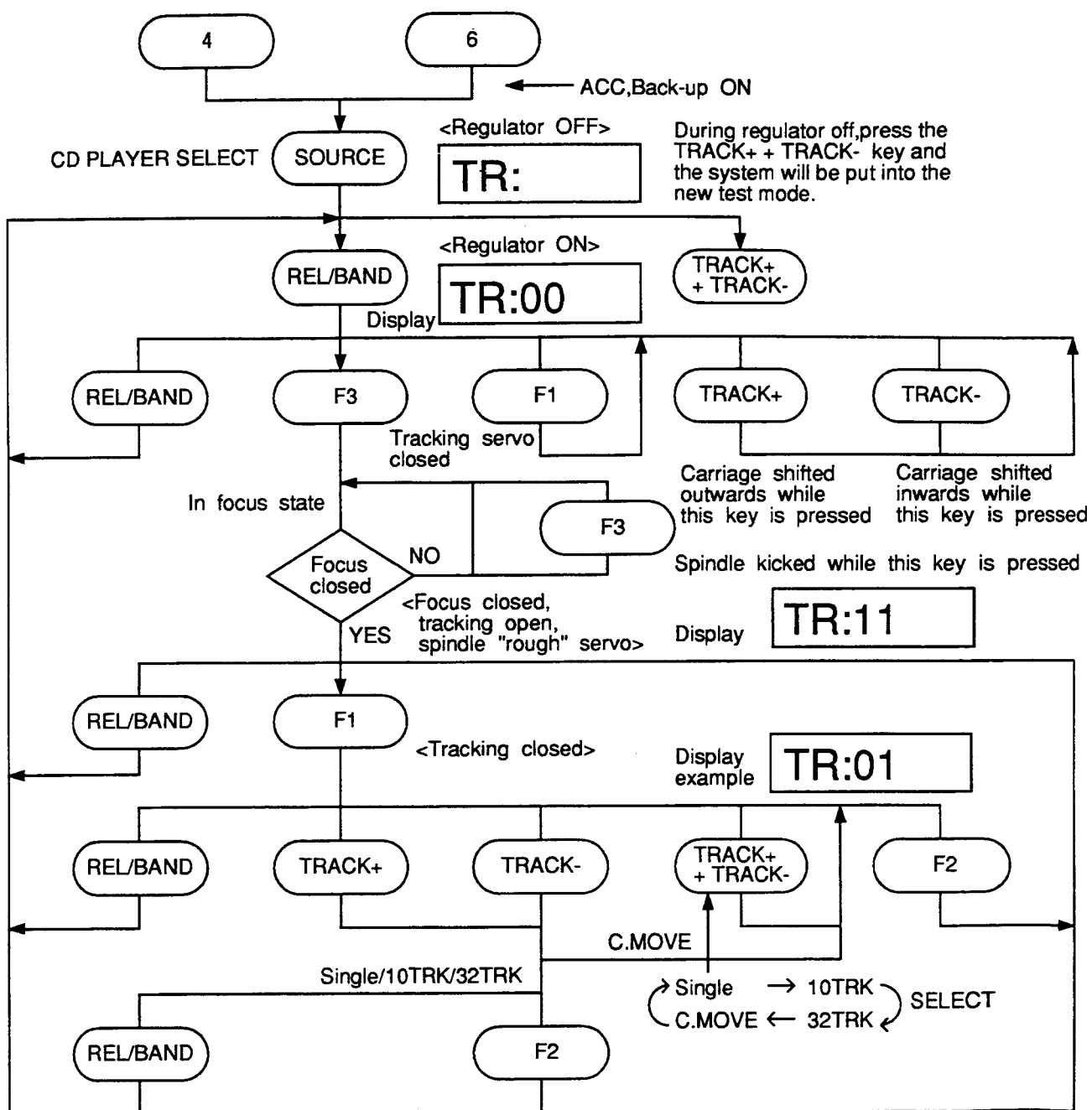
Key	Function
REL/BAND	Regulator ON/OFF
TRACK+	FWD Kick
TRACK-	REV Kick
EJECT	EJECT
TRACK+ + TRACK-	Jump mode

- Test mode starting procedure
Switch ACC, back-up ON while pressing the 4 and 6 keys together.
- Test mode cancellation
Switch ACC, back-up OFF.
- Disc detection during loading and eject operations is performed by means of a photo transistor in this unit. Consequently, if the inside of the unit is exposed to a strong light source when the outer casing is removed for repairs or adjustment, the following malfunctions may occur.
*During PLAY, even if the eject button is pressed, the disc will not be ejected and the unit will remain in the PLAY mode.
*The unit will not load a disc.
When the unit malfunctions this way, either reposition the light source, move the unit or cover the photo transistor.
- When loading and unloading discs during adjustment procedures, always wait for the disc to be properly clamped or ejected before pressing the another key. Otherwise, there is risk of the actuator being destroyed.
- Turn power off when pressing the TRACK+ or the TRACK- key for focus search in the test mode. (Or else lens may stick and the actuator may be damaged.)

Key	Function
F1(T.SCAN)	Tracking close
F2(MODE)	Tracking open
F3(PAUSE)	Focus close
SOURCE	CD ON/OFF

- SINGLE/10TRK/32TRK will continue to operate even after the key is released. Tracking closed the moment C-MOVE is released.
- JUMP MODE resets to SINGLE as soon as power is off.

● Flow Chart



• Measuring Equipment and Jigs

Adjustment	Measuring equipment&jigs
Grating Adjustment	Oscilloscope,clock driver,grating adjustment filter (bandpass filter)(GGF133),AC millivoltmeter SONY TYPE 4 (or TYPE 3) Extension Cable:GGF1132,GGF1135
Tangential Skew Check	Oscilloscope,screwdriver SONY TYPE 4 (or TYPE 3) Extension Cable:GGF1132,GGF1135
Grating Adjustment	Oscilloscope,clock driver,two low-pass filters SONY TYPE 4 (or TYPE 3) Extension Cable:GGF1132,GGF1135
FE Bias Adjustment	Oscilloscope SONY TYPE 4 (or TYPE 3) Extension Cable:GGF1132,GGF1135
RF Offset Adjustment	Oscilloscope SONY TYPE 4 (or TYPE 3) Extension Cable:GGF1132,GGF1135
TE Offset Adjustment-1	DC voltmeter Extension Cable:GGF1132,GGF1135
Tracking Balance Adjustment-1	Oscilloscope SONY TYPE 4 (or TYPE 3) Extension Cable:GGF1132,GGF1135
Focus Servo Loop Gain Adjustment	Oscillator,gain adjustment filter (GGF-065), dual meter milli-voltmeter SONY TYPE 4 (or TYPE 3) Extension Cable:GGF1132,GGF1135
Tracking Servo Loop Gain Adjustment	Oscillator,gain adjustment filter (GGF-065), dual meter milli-voltmeter SONY TYPE 4 (or TYPE 3) Extension Cable:GGF1132,GGF1135
TE Offset Adjustment-2	DC voltmeter Extension Cable:GGF1132,GGF1135
Tracking Balance Adjustment-2	Oscilloscope SONY TYPE 4 (or TYPE 3) Extension Cable:GGF1132,GGF1135

• Adjustment Point

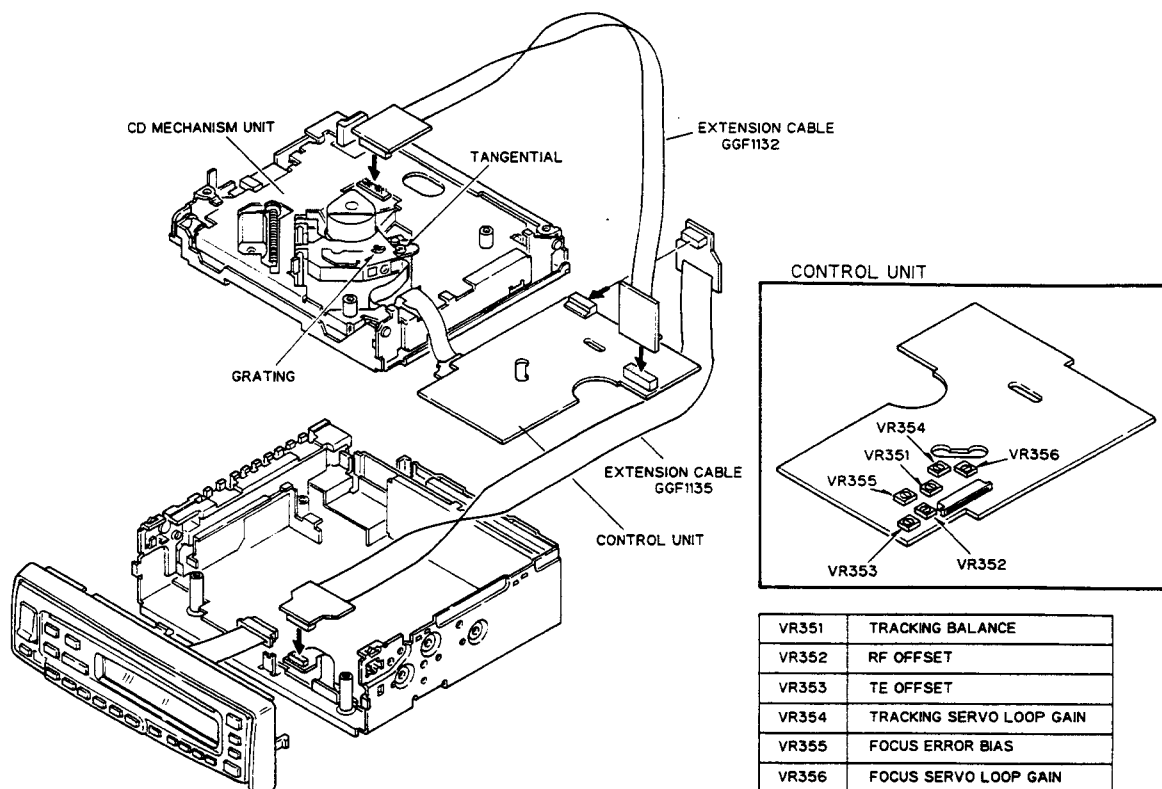


Fig. 17

Note :

CD mechanism module can be adjusted without removing control unit.

• Test Point

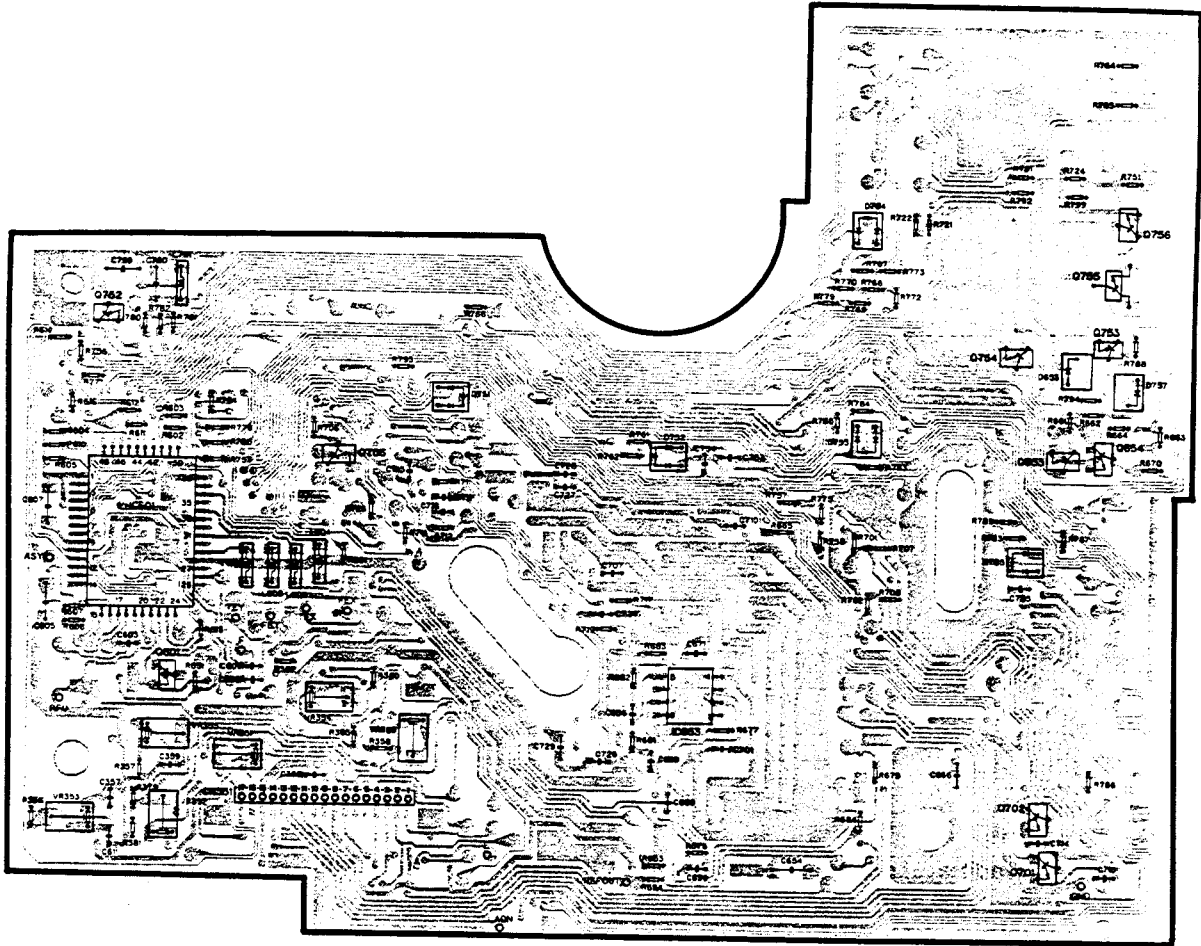


Fig. 18

10.1 GRATING ADJUSTMENT (ROUGH ADJUSTMENT)

- Purpose: The grating may need adjustment in a replaced pick-up unit.
- Maladjustment symptoms: No disc playback; track jumping.

- | | |
|---|---|
| <ul style="list-style-type: none"> • Measuring equipment / jigs • Measuring point • Test disc and setting • Adjustment position | <ul style="list-style-type: none"> • Oscilloscope, clock driver, grating adjustment filter (bandpass filter) (GGF-133), AC millivoltmeter • TEY • SONY TYPE 4 (or TYPE 3) • Test mode • Pick-up grating adjustment hole |
|---|---|

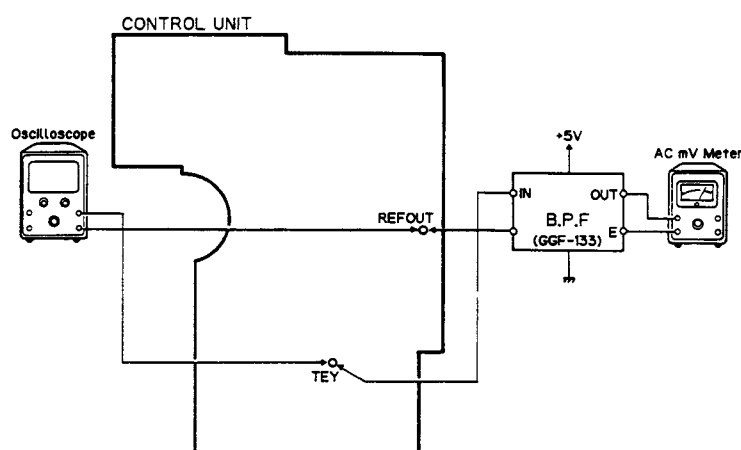


Fig. 19

Adjustment Procedure

1. Switch regulator ON in test mode, and load a disc.
2. Use **TRACK+** or **TRACK-** key as required to bring pick-up at the adjusting hole on control unit (tune TNO 6). (TYPE 3: TNO 7)
Mutch with TNO 6 (TYPE 3: TNO 7) when releweing the control unit.
3. Press the **F3** key to close focus.
4. While monitoring the TEY filter output by AC milli-voltmeter, turn the grating adjustment hole slowly. The AC voltage increases and decreases while turning the screw. Search for the minimum voltage level. (This corresponds to the position where the grating is on a track, and is referred to as the null point.)
5. Then while monitoring TEY by oscilloscope, turn the driver slowly clockwise from the null point (as seen from under the pick-up) until the first waveform peak amplitude is reached.

10.2 TANGENTIAL SKEW CHECK

- Purpose: To check whether tangential skew has been misaligned or not when replacing the pick-up unit.
- Maladjustment symptoms: No disc playback; track jumping.

- | | |
|---|--|
| <ul style="list-style-type: none"> • Measuring equipment / jigs • Measuring point • Test disc and setting • Adjustment position | <ul style="list-style-type: none"> • Oscilloscope, screwdriver • RFO • SONY TYPE 4 (or TYPE 3) • Normal mode • Pick-up tangential adjustment screw |
|---|--|

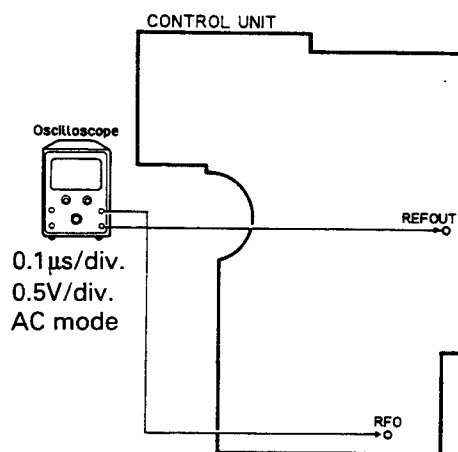


Fig. 20

Adjustment Procedure

1. Check that the pick up position does not differ from that at the same time of grating adjustment. (TYPE 4: TNO 6, TYPE 3: TNO 7)
2. Turn the tangential adjustment screw to obtain a good RF waveform eye pattern. Turn the adjustment screw both clockwise and counterclockwise to points where the eye pattern deteriorates, and take the midway point as the adjustment point. As a general guide, look for an overall clear waveform, and one of the diamond shapes in the eye pattern. The diamond shapes should appear in fine lines at the point of optimum adjustment. Take care not to knock the pick-up with the screwdriver at this stage. (This kind of accident can result in loss of focus.) (See Fig. 21, 22)
3. Apply "screw-lock" to the tangential adjustment screw.
4. After adjusting tangential skew, also adjust the grating.

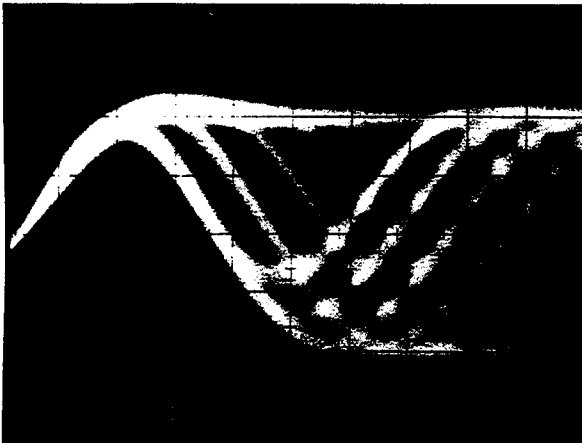
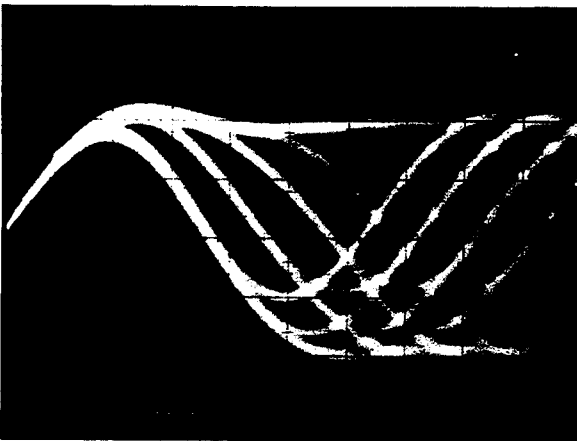


Fig. 21



AC mode
0.5V/div.
0.1 μ s/div.

Fig. 22

10.3 GRATING ADJUSTMENT (FINE ADJUSTMENT)

- Purpose: The grating may need adjustment in a replaced pick-up unit.
- Maladjustment symptoms: No disc playback; track jumping.

- | | |
|---|---|
| <ul style="list-style-type: none"> • Measuring equipment / jigs • Measuring point • Test disc and setting • Adjustment position | <ul style="list-style-type: none"> • Oscilloscope, clock driver, two low-pass filters • TEY, E LPF output, F LPF output • SONY TYPE 4 (or TYPE 3) • Test mode • Pick-up grating adjustment hole |
|---|---|

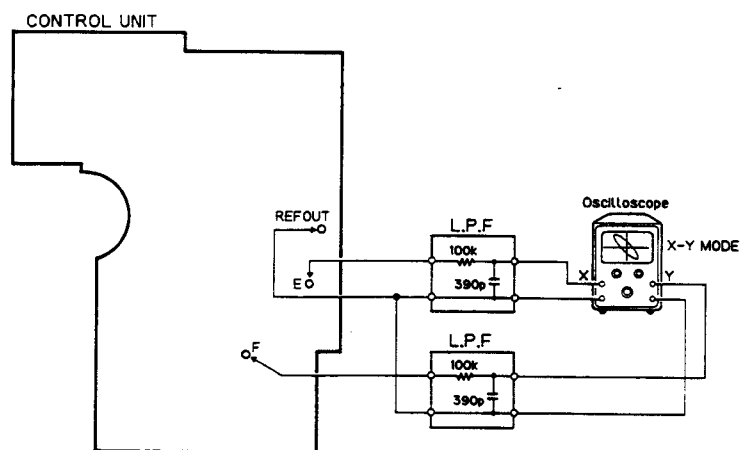
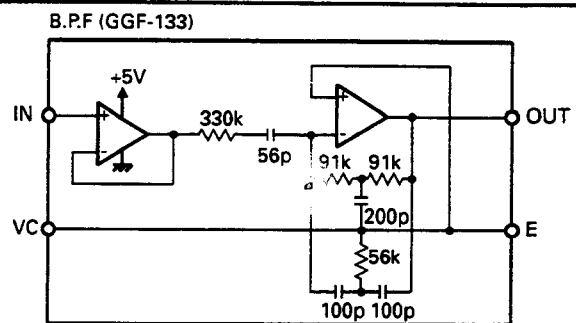


Fig. 23

Adjustment Procedure

1. Switch regulator ON in test mode, and load a disc.
2. Use **TRACK+** or **TRACK-** key as required to bring pick-up at the adjusting hole on control unit (tune TNO 6). (TYPE 3: TNO 7)
Mutch with TNO 6 (TYPE 3: TNO 7) when releweing the control unit.
3. Press the **F3** key to close focus.
4. With the E low-pass filter output connected to the X axis of the oscilloscope, and the F low-pass filter output connected to the Y axis, apply an input in AC mode and observe the Lissajous figures. (Fig. 24-29)
5. Using the driver, adjust the Lissajous figure to a single line (or as close as possible)
6. Switch regulator OFF and remove the filters.



TEY waveform 5ms/div., 0.5V/div.

Null Point

Lissajous figure (AC input)
Horizontal axis E 20mV/div
Vertical axis F 20mV/div

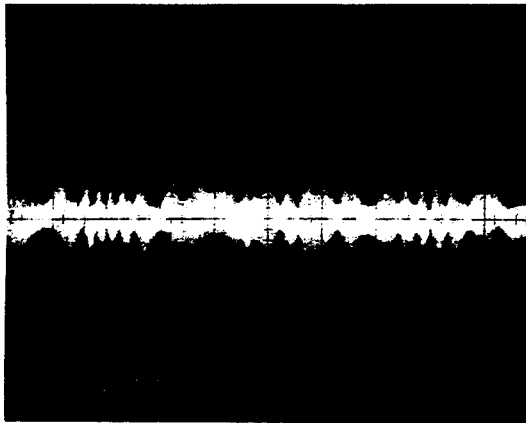


Fig. 24

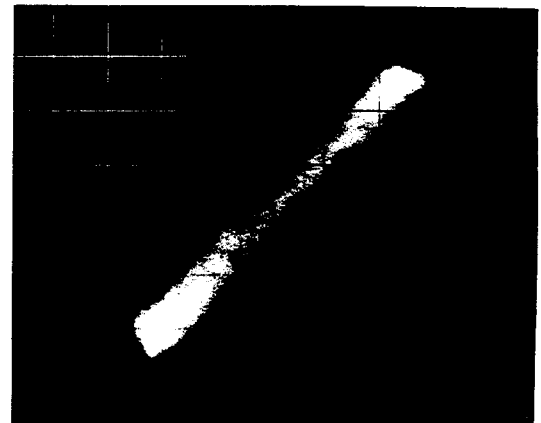


Fig. 25



"Rough" adjustment

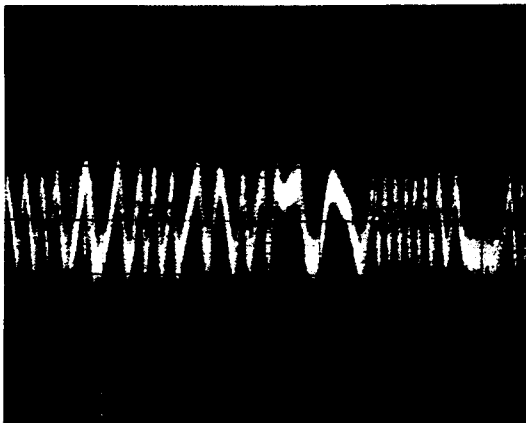


Fig. 26



Fig. 27



Final adjustment

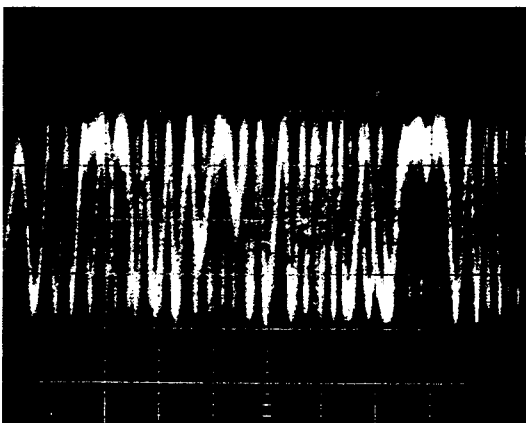


Fig. 28

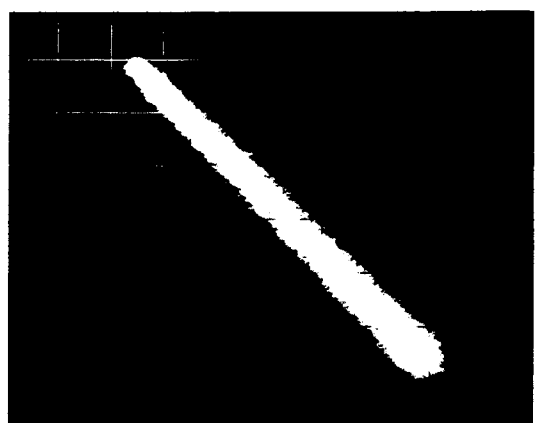


Fig. 29

10.4 FE BIAS ADJUSTMENT

- Purpose: To adjust the focus servo bias to an optimum value.
- Maladjustment symptoms: Focus closing difficulty, poor playability.

- | | |
|---|---|
| <ul style="list-style-type: none"> • Measuring equipment / jigs • Measuring point • Test disc and setting • Adjustment position | <ul style="list-style-type: none"> • Oscilloscope • RFO • SONY TYPE 4 (or TYPE 3) • Normal mode • VR355(FEB) |
|---|---|

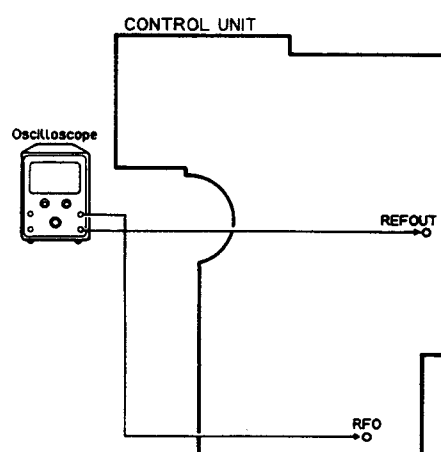
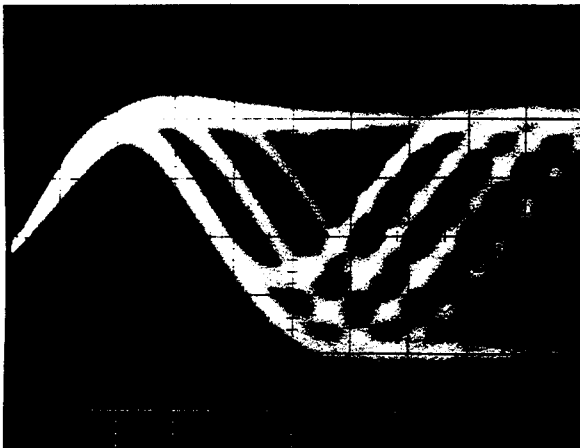


Fig. 30

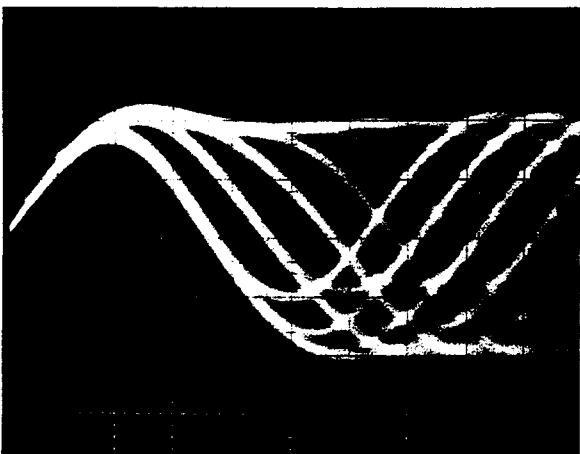
Adjustment Procedure

1. Play in normal mode.
2. Observe RFO in respect to REFOUT in the oscilloscope, and adjust VR355(FEB) to obtain maximum RF and optimum eye pattern. (See Fig.31,32)



OK

Fig. 31



AC Mode

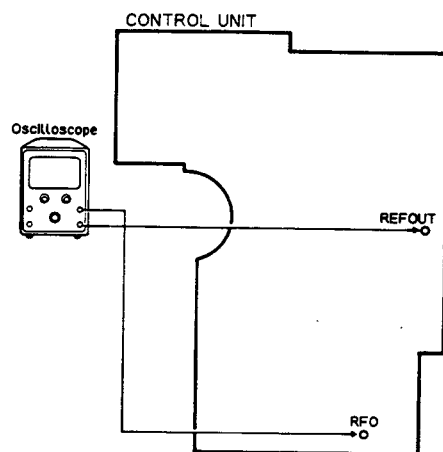
Before adjustment

Fig. 32

10.5 RF OFFSET ADJUSTMENT

- Purpose: To adjust the RF amplifier offset to a suitable value.
- Maladjustment symptoms: Focus closure fails readily.

- | | |
|---|--|
| <ul style="list-style-type: none"> • Measuring equipment / jigs • Measuring point • Test disc and setting • Adjustment position | <ul style="list-style-type: none"> • Oscilloscope • RFO • SONY TYPE 4 (or TYPE 3) • Normal mode • VR352(RFO) |
|---|--|

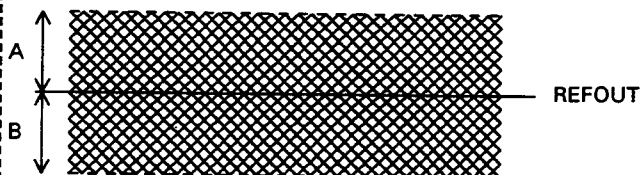


When using a multi-channel oscilloscope, do not connect the other negative probe to ground.

Fig. 33

Adjustment Procedure

1. Play tune TNO 12 in normal mode. (TYPE 3:TNO 14)
2. Use VR352 to adjust the RFO waveform so that REFOUT appears at the center. (A-B must not exceed 100 mV.)



10.6 TE OFFSET ADJUSTMENT-1

- Purpose: To adjust the electrical offset of the tracking servo to zero.
- Maladjustment symptoms: Search times too long, carriage run-away.

- | | |
|---|--|
| <ul style="list-style-type: none"> • Measuring equipment / jigs • Measuring point • Test disc and setting • Adjustment position | <ul style="list-style-type: none"> • DC voltmeter • TEY • No Disc • Test mode • VR353(TEO) |
|---|--|

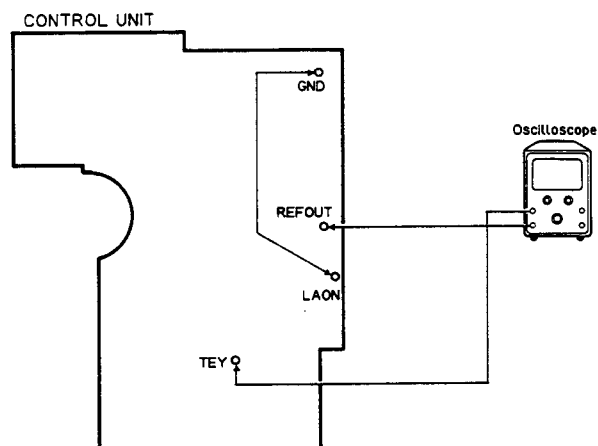


Fig. 34

Adjustment Procedure

1. Connect LAON to GND.
2. Switch regulator ON while in test mode.
3. Using VR353(TEO), adjust the TEY output DC voltage in reference to REFOUT to a value of $0 \pm 25\text{mV}$.
4. Switch regulator OFF.

10.7 TRACKING BALANCE ADJUSTMENT-1

- Purpose: To adjust the tracking servo offset to zero.
- Maladjustment symptoms: Search times too long, poor playability, carriage run-away.

- | | |
|---|--|
| <ul style="list-style-type: none"> • Measuring equipment / jigs • Measuring point • Test disc and setting • Adjustment position | <ul style="list-style-type: none"> • Oscilloscope • TEY (Tracking error signal) • SONY TYPE 4 (or TYPE 3) • Test mode • VR351(T.BAL) |
|---|--|

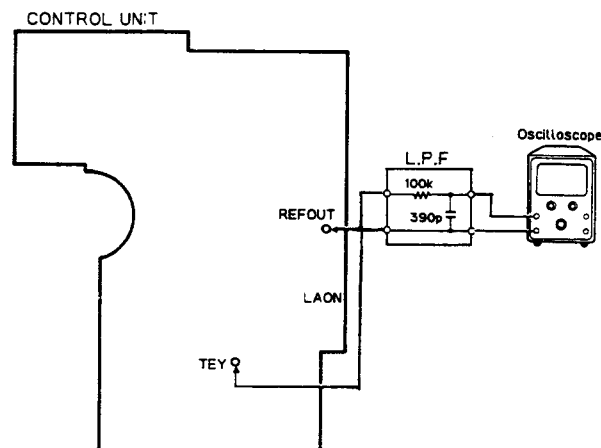
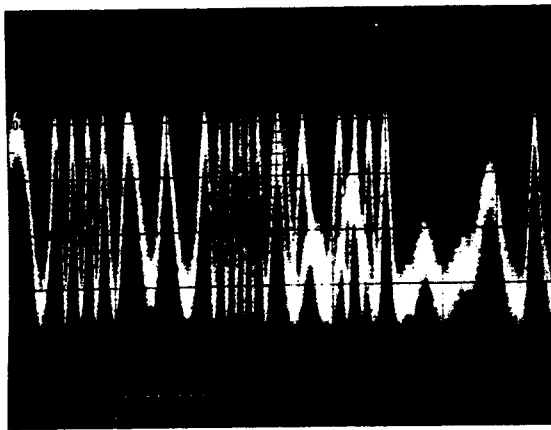


Fig. 35

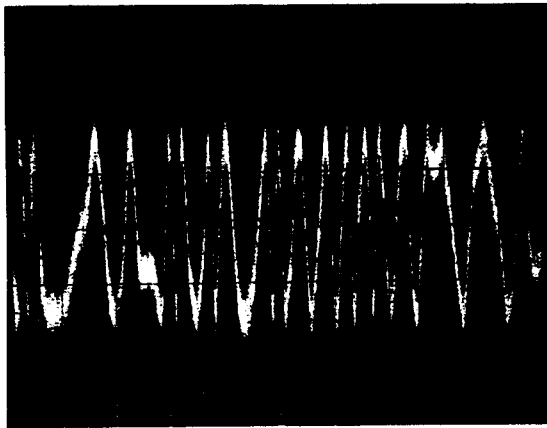
Adjustment Procedure

1. Set the test disc (SONY TYPE 4). Switch regulator ON.
2. Using the **TRACK+** or **TRACK-** key, move the pick-up to about the center of the signal surface.
3. Press the **F3** key to close focus.
4. Using an oscilloscope, observe the TEY signal in respect to REFOUT. Then adjust VR351(T.BAL) to set the positive and negative amplitudes to the same levels. (See Fig. 36-38)
5. Switch the power OFF.



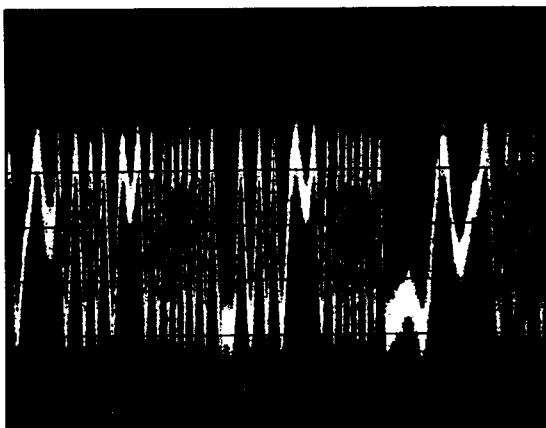
+ 5% NG

Fig. 36



± 0% OK

Fig. 37



- 5% NG

Fig. 38

10ms/div.
0.5V/div.
DC Mode

10.8 FOCUS SERVO LOOP GAIN ADJUSTMENT

- Purpose: To adjust the focus servo loop gain to an optimum value.
- Maladjustment symptoms: Poor playability, reduced resistance to vibration, focus closure fails readily.

- | | |
|---|--|
| <ul style="list-style-type: none"> • Measuring equipment / jigs • Measuring point • Test disc and setting • Adjustment position | <ul style="list-style-type: none"> • Oscillator, gain adjustment filter (GGF-065), dual meter milli-voltmeter • FEX, FEY • SONY TYPE 4 (or TYPE 3) • Normal mode • VR356(FG) |
|---|--|

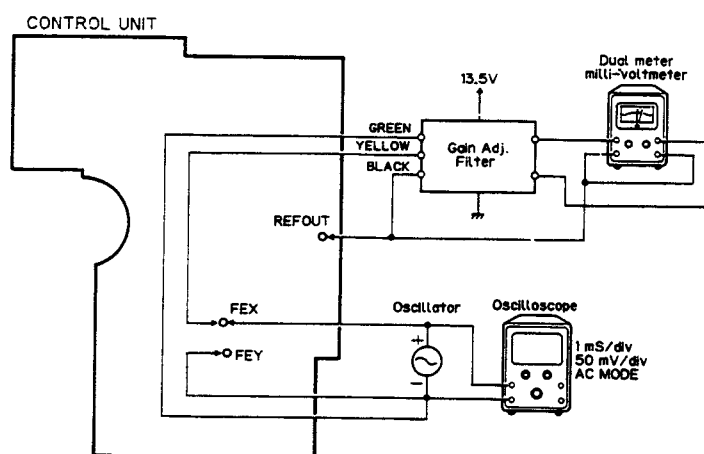


Fig. 39

Adjustment Procedure

1. After checking that the power is OFF, connect the gain adjustment filter and measuring equipment as shown in the above diagram.
2. Play tune TNO 12 in normal mode. (TYPE 3: TNO 14)
3. Set the oscillator to 1kHz, and observe the FEX/FEY output in the oscilloscope. Adjust the oscillator output to obtain a FEX/FEY output of 100mVp-p.
4. Adjust VR356(FG) to obtain a milli-voltmeter difference of $0 \pm 0.5\text{dB}$.

10.9 TRACKING SERVO LOOP GAIN ADJUSTMENT

- Purpose: To adjust the tracking servo loop gain to an optimum value.
- Maladjustment symptoms: Poor playability, reduced resistance to vibration.

- | | |
|---|--|
| <ul style="list-style-type: none"> • Measuring equipment / jigs • Measuring point • Test disc and setting • Adjustment position | <ul style="list-style-type: none"> • Oscillator, gain adjustment filter (GGF-065), dual meter milli-voltmeter • TEX, TEY • SONY TYPE 4 (or TYPE 3) • Normal mode • VR354(TG) |
|---|--|

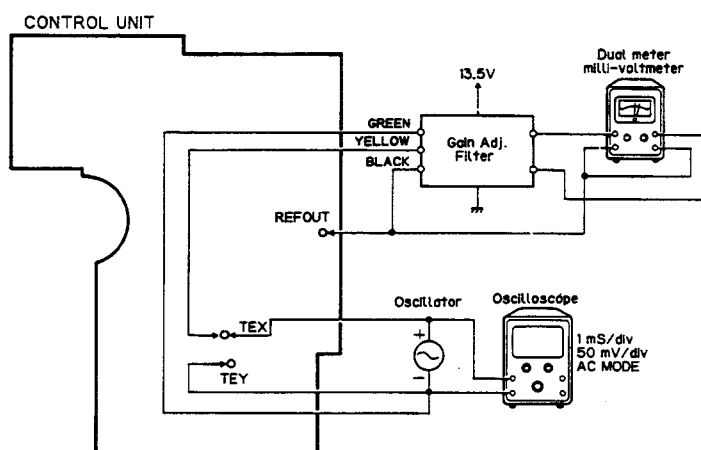


Fig. 40

Adjustment Procedure

1. After checking that the power is OFF, connect the gain adjustment filter and measuring equipment as shown in the above diagram.
2. Play tune TNO 12 in normal mode. (TYPE 3: TNO 14)
3. Set the oscillator to 1.4kHz, and observe the TEX/TEY output in the oscilloscope. Adjust the oscillator output to obtain a TEX/TEY output of 300mVp-p.
4. Adjust VR354(TG) to obtain a milli-voltmeter difference of $0 \pm 0.5\text{dB}$.

10.10 TE OFFSET ADJUSTMENT-2

- Purpose: To adjust the electrical offset of the tracking servo to zero.
- Maladjustment symptoms: Search times too long, carriage run-away.

- | | |
|--|--|
| <ul style="list-style-type: none">• Measuring equipment / jigs• Measuring point• Test disc and setting• Adjustment position | <ul style="list-style-type: none">• DC voltmeter• TEY• No Disc • Test mode• VR353 |
|--|--|

Adjustment Procedure

Same as for TE offset adjustment-1, but with the DC voltage of the TEY output adjusted to $0 \pm 50 \text{ mV}$.

The purpose of this additional adjustment is to correct any deviations generated when carrying out the tracking balance and tracking servo loop gain adjustments after completing TE offset adjustment-1.

10.11 TRACKING BALANCE ADJUSTMENT-2

- Purpose: To adjust the tracking servo offset to zero.
- Maladjustment symptoms: Search times too long, poor playability, carriage run-away.

- | | |
|---|--|
| <ul style="list-style-type: none"> • Measuring equipment / jigs • Measuring point • Test disc and setting • Adjustment position | <ul style="list-style-type: none"> • Oscilloscope • TEY • SONY TYPE 4 (or TYPE 3) • Test mode • VR351 |
|---|--|

Adjustment Procedure

Steps 1 thru 5 same as tracking balance adjustment-1.

6. Check that the level difference between the positive and negative amplitudes of the TEY signal is within 5% (See Fig.36-38). If greater than 5%, adjust with VR351.
7. If further adjustment was necessary in step 6, repeat TE offset adjustment-2.

10.12 TUNER ADJUSTMENT

• Connection Diagram

NOTICE:

SELECT C1 so that total capacity of 80pF is attained from the direction of the receiver jack.
Z: Output impedance of SSG.

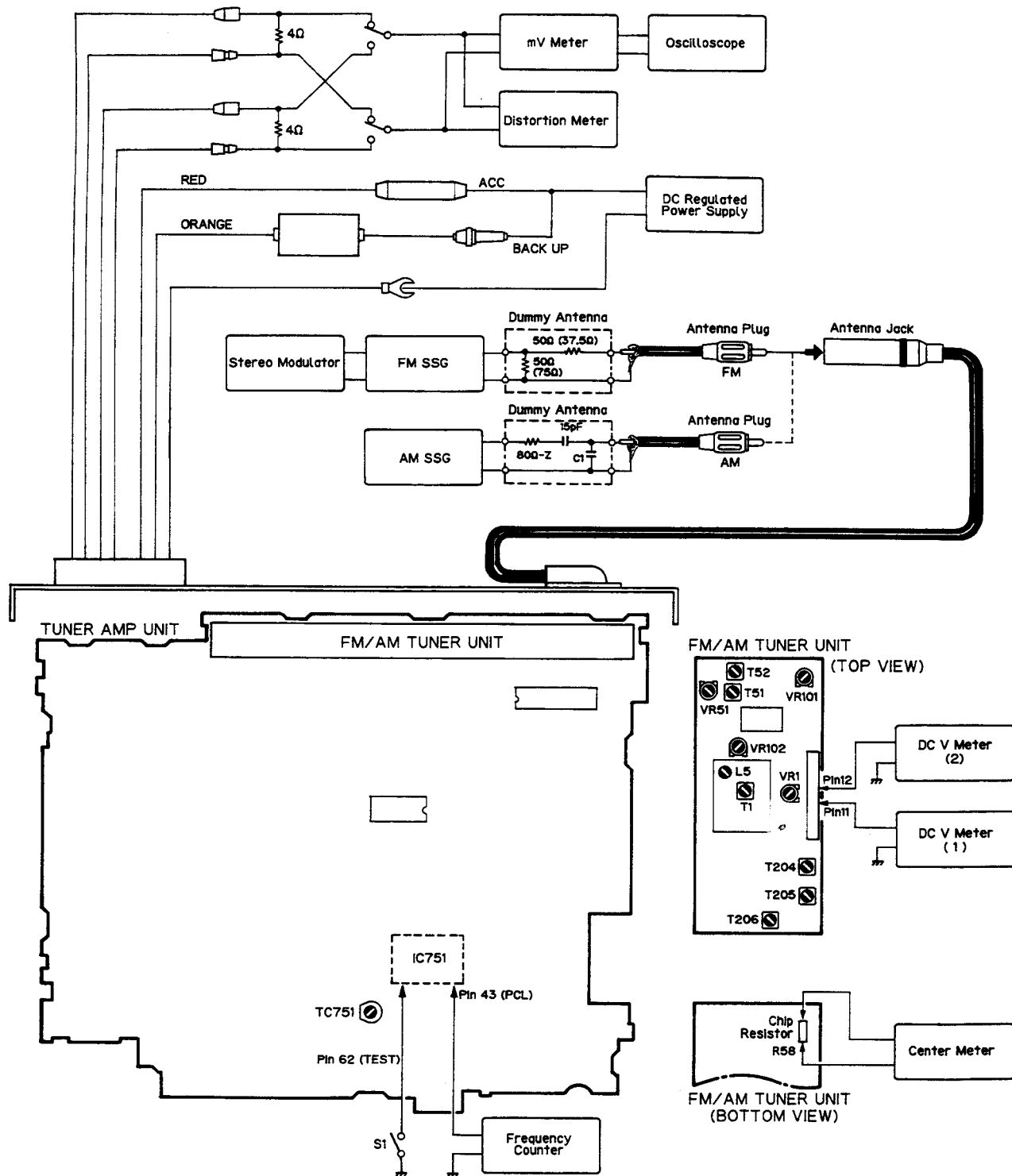


Fig. 41

FM ADJUSTMENT ※ Stereo MOD.: 1kHz, L+R=90% , Pilot=10%

	No.	FM SSG (400Hz, 100%)		Displayed Frequency (MHz)	Adjusting Point	Adjustment Method (Switch Position)
		Frequency (MHz)	Level (dB μ V)			
IF	1	98.1025	60	98.1	T51	Center Meter:0
	2	98.1	60	98.1	T52	Distortion Meter:Minimum
	3	Repeat No.1-2 alternately so that the center meter indicates the 0 output and distortion meter indicates minimum output.				
Front End	1			108.0	L5	DC V Meter(1):6.2 \pm 0.2V
	2			87.5		Verify that DC V Meter(1) is more than 2.1 \pm 0.6V
	3	98.1	8	98.1	T1	Oscilloscope:Optimum Symmetry
	4	98.1※	60	98.1	T1	Distortion Meter:Minimum Rotate T1 less than \pm 90
Soft Mute	1	98.1	60	98.1		mV Meter(1):A dB
	2	98.1	9	98.1	VR102	mV Meter(1):A-3dB
ARC	1	98.1※	34	98.1	VR101	mV Meter(1):Separation 5dB
SD	1	98.1	15	98.1	VR51	DC V Meter(2):Approx. 5V
	2	98.1	14	98.1		Verify that DC V Meter (2) is approx. 0V.
	3	98.1	55	98.1	VR1	DC V Meter(2):Approx. 5V
		Connect collector of Q2 to GND. Connect DC regulated power supply to pin 3 of FM front end through resistor(330 Ω). Add 4.3v from DC regulated power supply.				
	4	98.1	54	98.1		Verify that DC V Meter (2) is approx. 0V.

MW/LW ADJUSTMENT

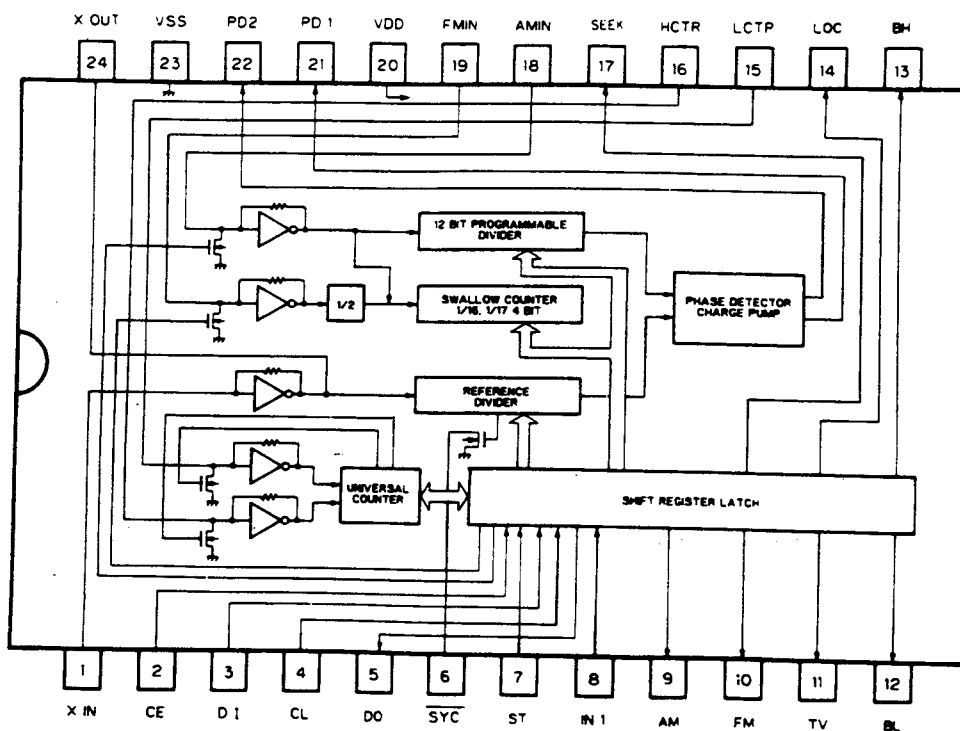
	No.	AM SSG(400Hz, 30%)		Displayed Frequency (kHz)	Adjusting Point	Adjustment Method (Switch Position)
		Frequency (kHz)	Level (dB μ V)			
Tuning Volt	1	(MW MODE)		1,602	—	Verify that DC V Meter (1) is less than 6.5V.
	2	(LW MODE)		153	—	Verify that DC V Meter (1) is more than 2.0V.
IF	1	999	20-25	999	T204, 205, 206	mV Meter(1):Maximum

CLOCK ADJUSTMENT

No.	Adjusting Point	Adjustment Method
1		BACK-UP→ON, ACC→ON
2		S1:ON
3	TC751	Frequency Counter:1,048,576Hz \pm 2Hz

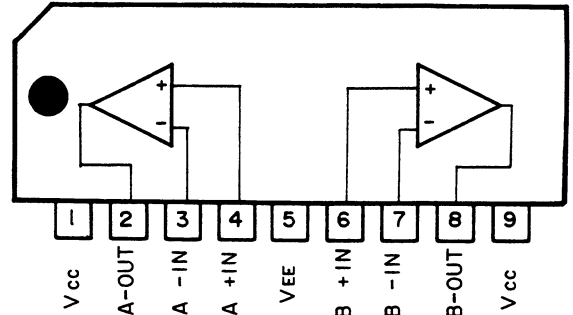
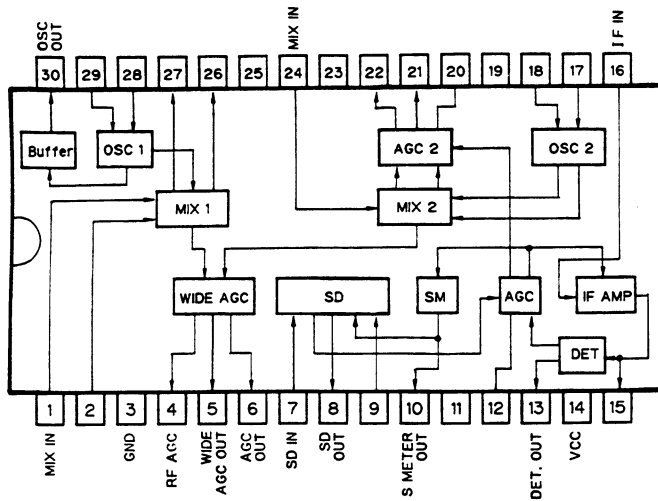
• ICs

LC7218HS

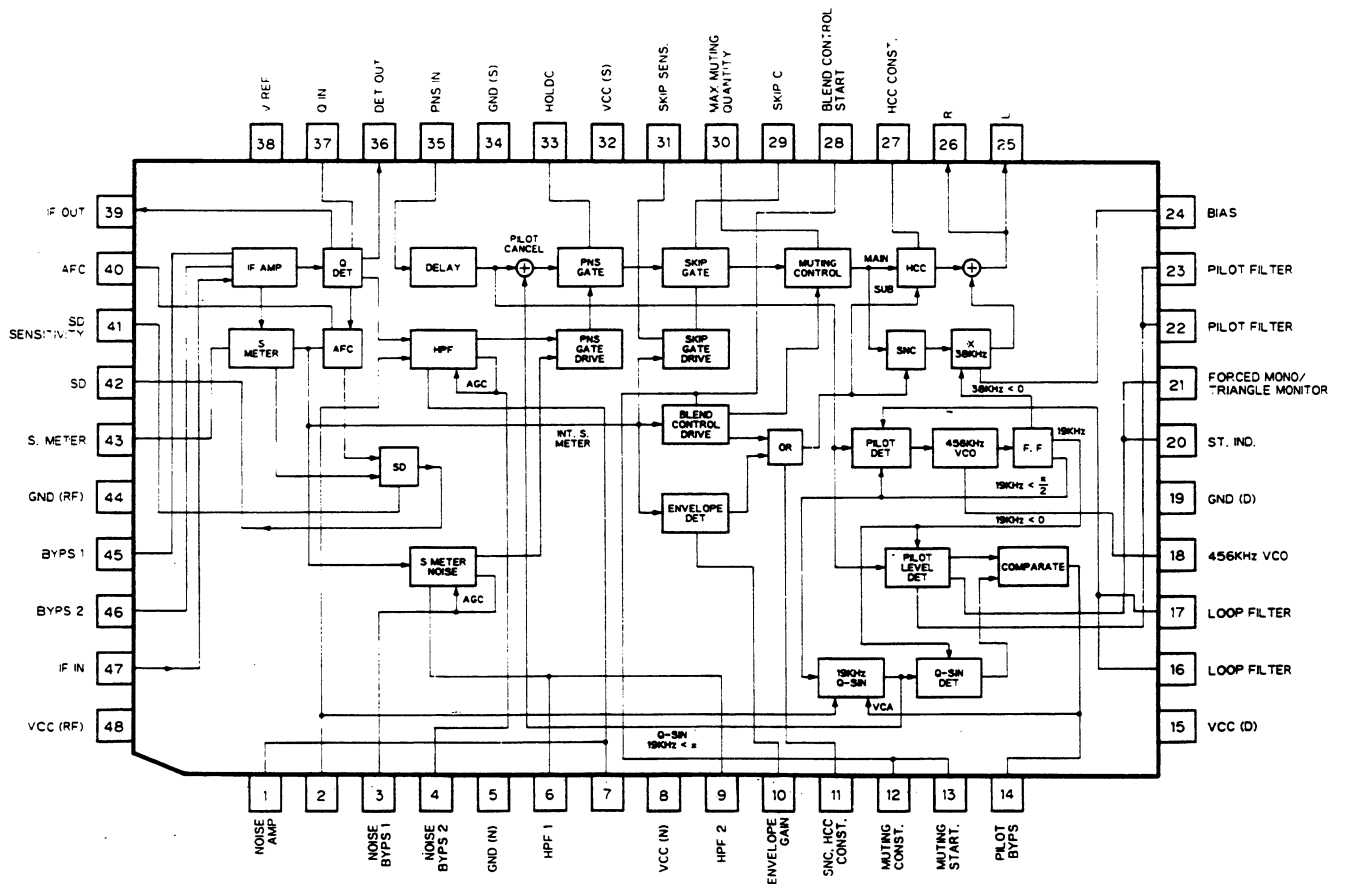


IC201 : PA4017

RC4558S



PA4012B



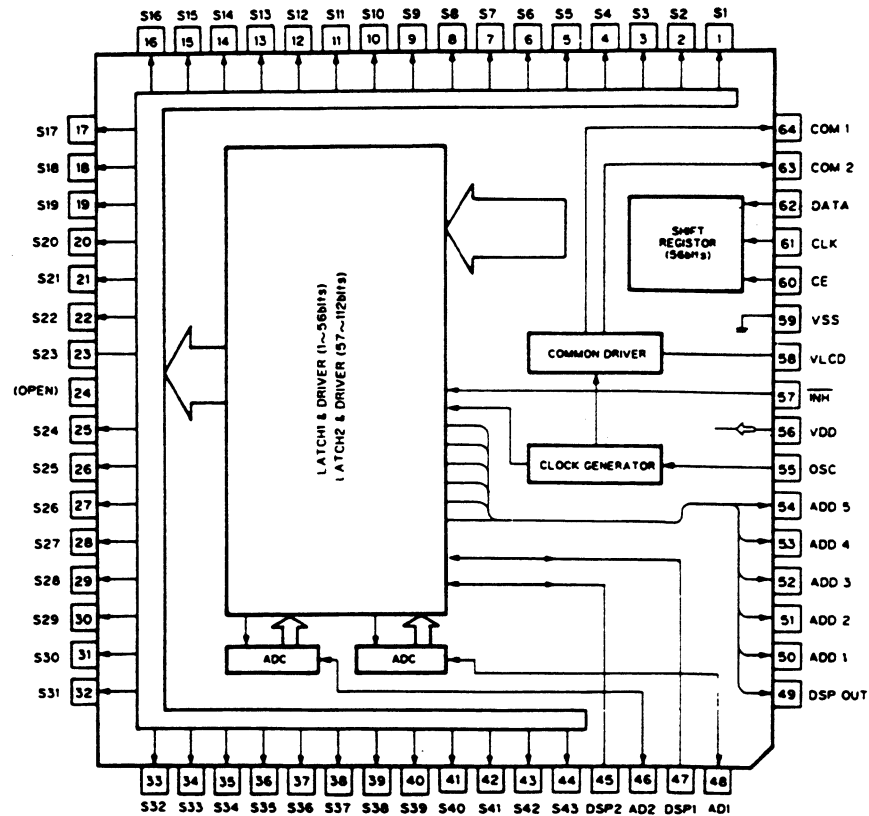
UPC1347GS

VCC	1	36	FE20
BP	2	35	FE2-
BPO	3	34	FE10
WC+	4	33	FE1+
WC-	5	32	FE2+
GND	6	31	VREF2
QDH	7	30	TE20
QDO	8	29	TE2-
A	9	28	TE10
C	10	27	APCO
B	11	26	TE2+
D	12	25	APC-
E	13	24	RFO
F	14	23	NC
PIN	15	22	RF-
LA	16	21	RFS
LAON	17	20	RF+
VREF1	18	19	GND2

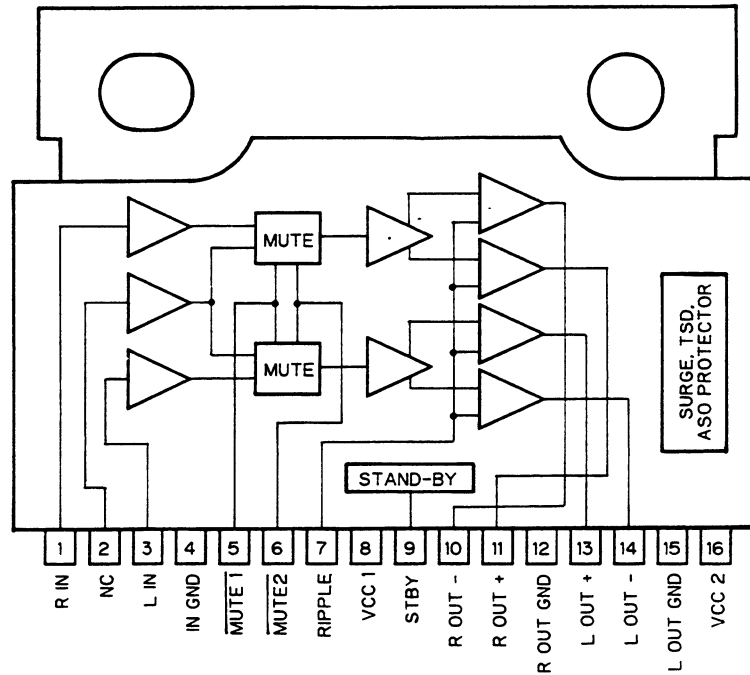
• Pin Functions (UPC1347GS)

Pin No	Pin Name	I/O	Function and Operation
1	VCC		
2	BP-	Input	Vibration detect amplifier 1 inverter input
3	BPO	Output	Vibration detect amplifier 1 output
4	WC+	Input	Window comparator non-inverting input
5	WC-	Input	Window comparator inverter input
6	GND		GND
7	QDH	Input	Vibration detect amplifier 3 non-inverting input
8	QDO	Output	Vibration detect amplifier 3 output
9	A	Input	A signal input
10	C	Input	C signal input
11	B	Input	B signal input
12	D	Input	D signal input
13	E	Input	E signal input
14	F	Input	F signal input
15	PIN	Input	APC circuit PD amplifier input
16	LA	Output	APC circuit LD amplifier output
17	LAON		Laser diode ON/OFF switching
18	VREF1		Reference voltage
19	GND2		GND
20	RF+	Input	RF amplifier non-inverting input
21	RFS	Output	RF summing virtual output
22	RF-	Input	RF amplifier inverter input
23	NC		
24	RFO	Output	RF amplifier output
25	APC-	Input	APC circuit PD amplifier inverter input
26	TE2+	Input	Tracking error amplifier 2 non-inverting input
27	APCO	Output	APC circuit PD amplifier output
28	TE10	Output	Tracking error amplifier 1 output
29	TE2-	Input	Tracking error amplifier 2 inverter input
30	TE20	Output	Tracking error amplifier 2 output
31	VREF2		Reference voltage
32	FE2+	Input	Focus error amplifier 2 non-inverting input
33	FE1+	Input	Focus error amplifier 1 non-inverting input
34	FE10	Output	Focus error amplifier 1 output
35	FE2-	Input	Focus error amplifier 2 inverter input
36	FE20	Output	Focus error amplifier 2 output

LC7582E



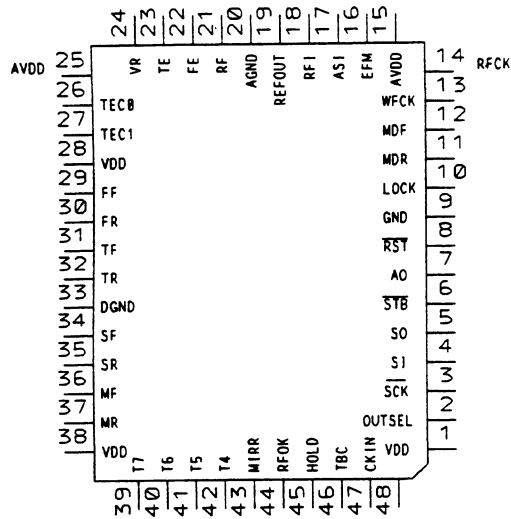
HA13139



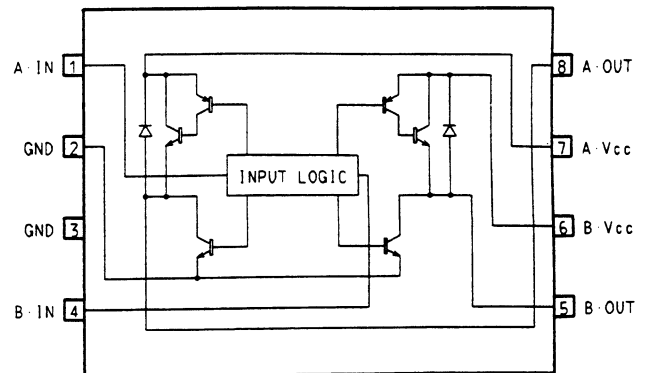
• Pin Functions (UPD6374GH)

Pin No	Pin Name	I/O	Function and Operation
1	VDD		Positive power supply terminal for logic circuit
2	OUTSEL	Input	Sets PWM output mode for the motor system
3	SCK	Input	Clock input terminal for serial data input and output
4	SI	Input	Serial data input
5	SO	Output	serial data and status signal output
6	STB	Input	Signal latching serial data inside LSI
7	A0	Input	Used in combination with STB A0 = "L" : Set in address register when STB is active A0 = "H" : Parameter setting when STB is active
8	RST	Input	System reset
9	DGND		Logic circuit GND
10	LOCK	Input	Input terminals for detection of spindle servo error signals
11	MDR	Input	
12	MDF	Input	
13	WFCK	Input	
14	RFCK	Input	
15	AVDD		Positive power supply terminal for analog circuit
16	EFM	Output	EFM signal output terminal
17	ASI	Input	Level comparing input terminal for RF signal comparison
18	RFI	Input	Analog input terminal for EFM comparator
19	REFOUT	Output	A/D converter midpoint output terminal inside LSI
20	AGND		Analog circuit GND
21	RF	Output	RF signal input terminal
22	FE	Input	Focus error input terminal
23	TE	Input	Tracking error input terminal
24	VR	Input	Input signal is quantified as follows : Fs=88.2KHz. Resolution : 6 bits The output takes place directly at microcomputer interface, that is, not via the filter block within LSI.
25	AVDD		Positive power supply terminal for analog circuit
26	TECO	Input	Tracking comparator input terminal
27	TECI	Input	
28	DVDD		Positive power supply terminal for logic circuit
29	FF	Output	PWM positive output terminal for the focus loop filter
30	FR	Output	PWM negative output terminal for the focus loop filter
31	TF	Output	PWM positive output terminal for the tracking loop filter
32	TR	Output	PWM negative output terminal for the tracking loop filter
33	DGND		Logic circuit GND terminal
34	SF	Output	PWM positive output terminal for the thread loop filter
35	SR	Output	PWM negative output terminal for the thread loop filter
36	MF	Output	PWM positive output terminal for the spindle loop filter
37	MR	Output	PWM negative output terminal for the spindle loop filter
38	DVDD		Positive power supply terminal for logic circuit
39	T7	Input	Sets tracking PWM output mode
40	T6	Input	Sets focus PWM output mode
41	T5	Input	Selects motor modulation-mode
42	T4	Input	Selects between focus and tracking modulation modes
43	MIRR	Output	MIRR detection signal output terminal
44	RFOK	Output	RFOK detection signal output terminal
45	HOLD	Input	Hold control signal input terminal
46	TBC		Tracking bank switching terminal
47	CKIN	Input	System clock input terminal
48	TEST	Input	Test terminal

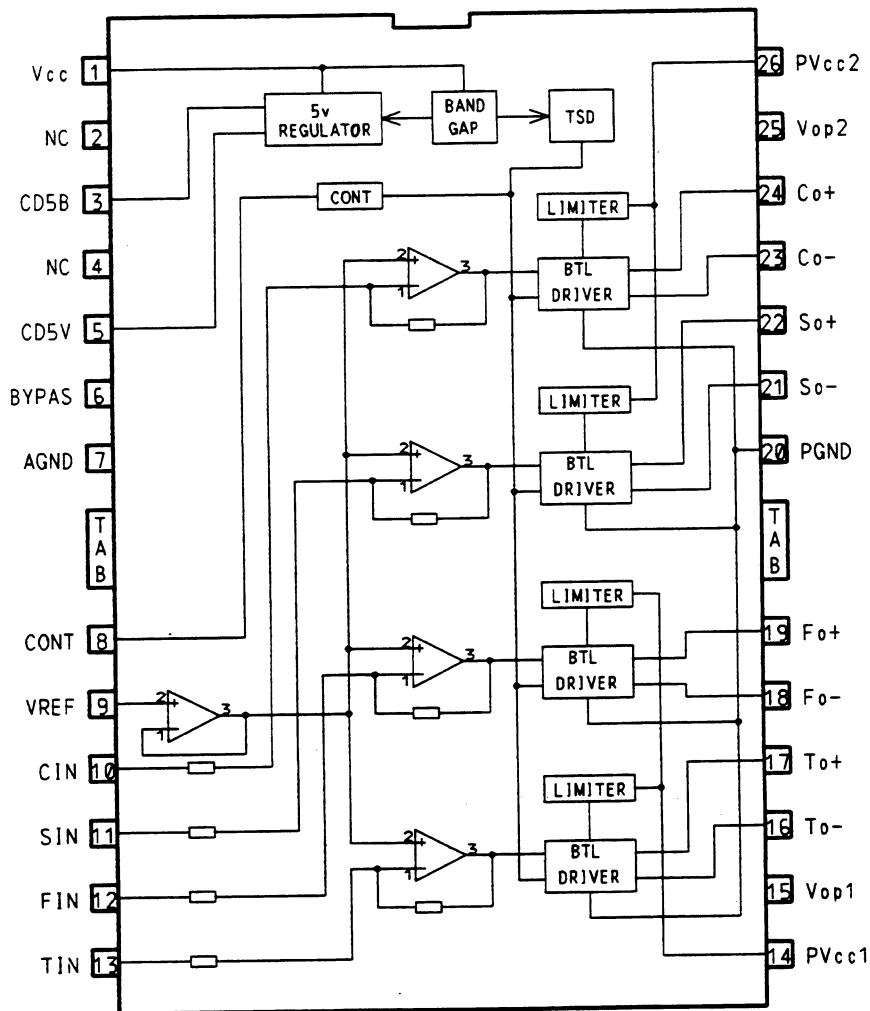
UPD6374GH



MB3854PF



PA3026

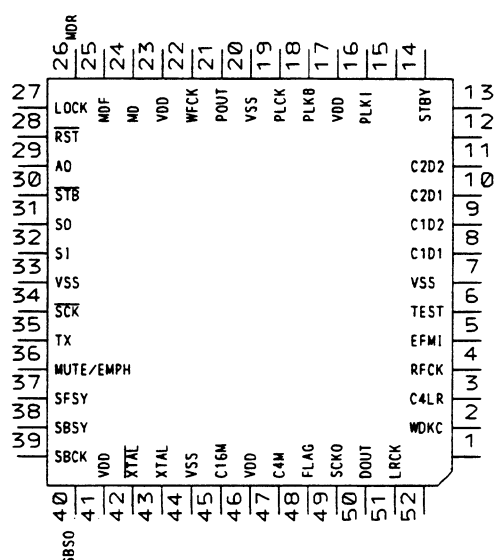
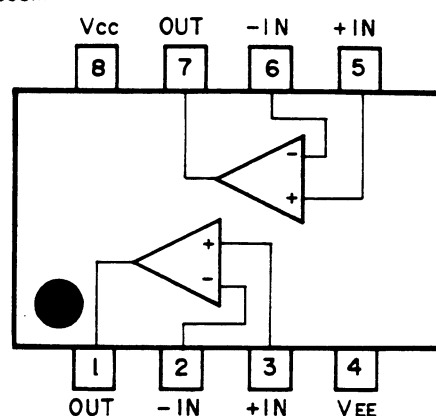


• Pin Functions (UPD6375GC)

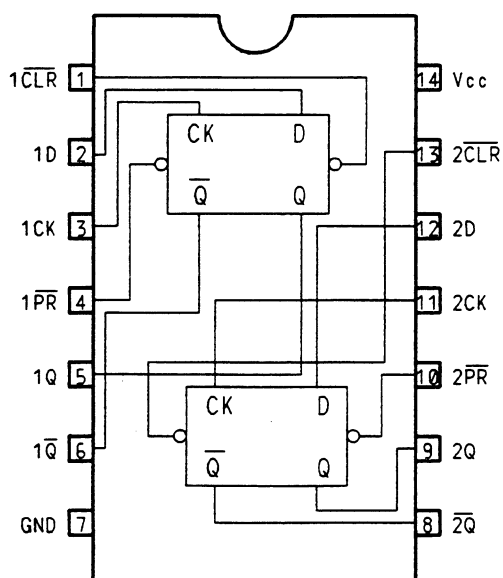
Pin No	Pin Name	I/O	Function and Operation
1	NC		
2	WDCK	Output	Output terminal for signal having double the frequency of LRCK
3	C4LR	Output	Output terminal for signal having four the frequency of LRCK
4	RFCK	Output	Oscillation clock divider signal, output terminal for signal giving one-frame synchronization
5	EFMI	Input	EFM signal input terminal
6	TEST		TEST
7	VSS		GND
8	C1D1	Output	Output terminal indicating C1 error correction status
9	C1D2	Output	
10	C2D1	Output	
11	C2D2	Output	Output terminal indicating C2 error correction status
12, 13	NC		
14	STBY	Input	Standby input terminal. STBY=H stops clock oscillation
15	NC		
16	PLK1	Output	VCO output terminal for use in analog PLL selection
17	VDD		VDD
18	PLK8	Input	VCO clock input terminal for use in analog PLL selection
19	PLCK	Output	Bit clock monitor terminal
20	VSS		GND
21	POUT	Output	Output terminal for phase comparison between EFM signal and bit clock
22	WFCK	Output	Signal issuing one-frame period (approximately 7.35kHz) by bit clock dividing signal
23	VDD		5 V
24	MD	Output	Signal indicating spindle motor CLV servo control output status
25	MDF	Output	Spindle motor CLV servo control positive direction output terminal
26	MDR	Output	Spindle motor CLV servo control negative direction output terminal
27	LOCK	Output	Becomes "H" when the synchronization signal and frame counter output coincide at EFM demodulator
28	RST	Input	Reset signal input terminal
29	A0	Input	Control signal distinguishing data from microcomputer
30	STB	Input	Signal latching within this LSI the serial data fetched from SI terminal
31	SO		Serial data input terminal
32	SI	Input	Input terminal fro data from microcomputer
33	VSS		GND
34	SCK	Input	Clock input terminal for serial data input
35	TX	Output	Digital audio interface data output terminal
36	MUTE/EMPH	Output	Output terminal for mute command decoding signal or sub-Q command pre-emphasis data
37	SFSY	Output	Signal indicating subcode one-frame synchronization
38	SBSY	Output	Signal indicating head of subcode block
39	SBCK	Input	Subcode data read clock input terminal
40	SBSO	Output	Subcode data output terminal
41	VDD		5 V
42	XTAL	Output	Oscillation continuation terminal
43	XTAL	Input	Oscillation continuation terminal

Pin No	Pin Name	I/O	Function and Operation
44	VSS		GND
45	C16M	Output	Oscillation clock output terminal
46	VDD		5 V
47	C4M	Output	1/4 cycle output terminal for oscillation clock signals
48	FLAG	Output	Flag signal indicating that the current audio data output consists of incorrectable data
49	SCKO	Output	Clock output terminal for audio serial data
50	DOUT	Output	Serial audio data output terminal
51	LRCK	Output	Signal distinguishing between left and right channel DOUT terminal output
52	NC		

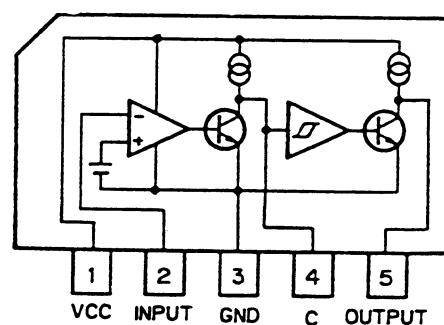
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M5218FP
RC4558M


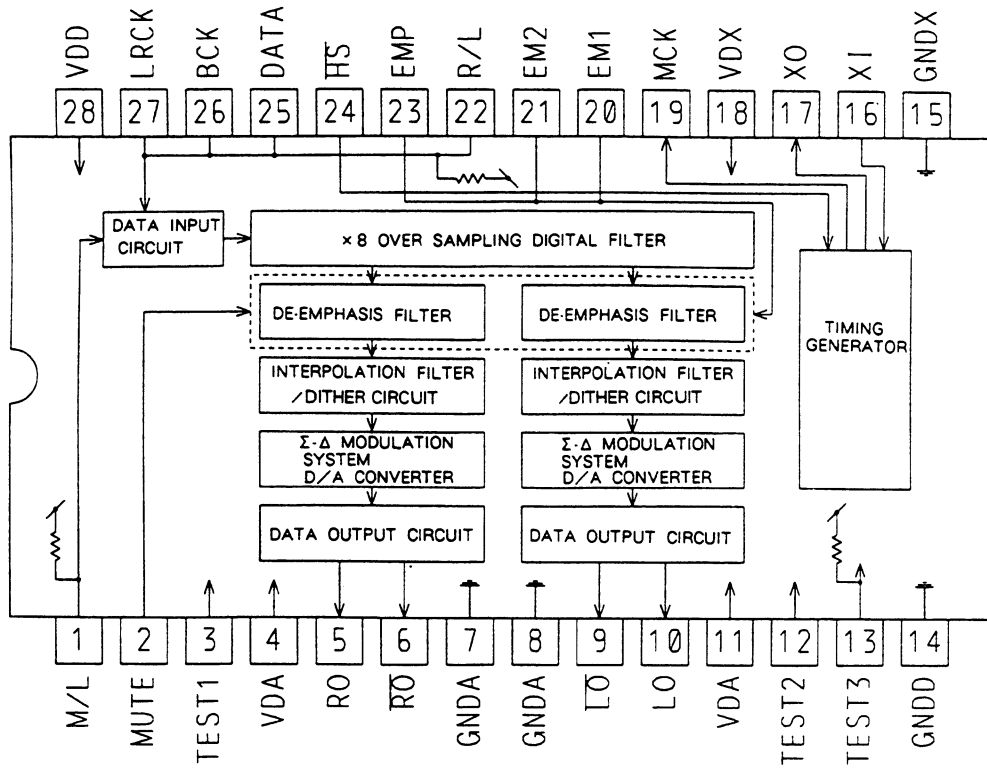
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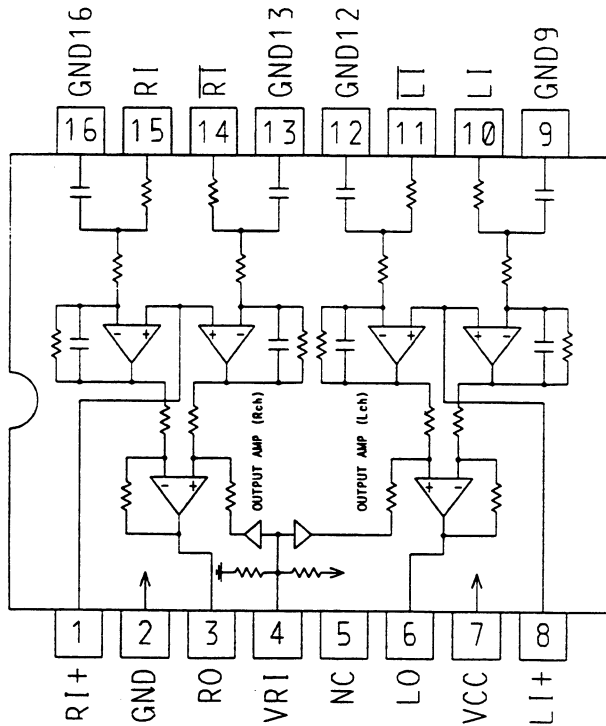
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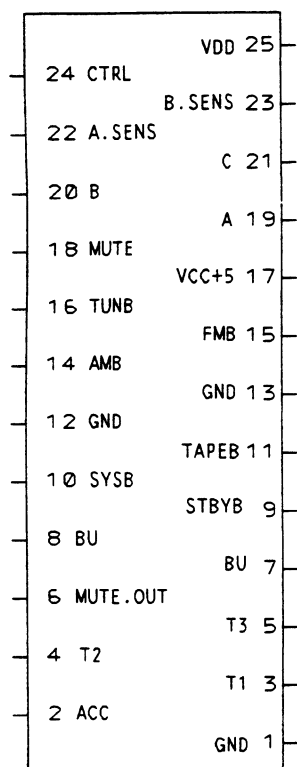
TC9237F-PK



TA2009F



PA2019A



• Pin Function (PA2019A)

Pin No.	Pin Name	I/O	Function and Operation
1	GND(REF)		Reference ground
2	ACC		ACC
3	T1		Connects external condenser for VDD back-up
4, 5	NC		
6	MUTEOUT	Output	Mute circuit control output
7, 8	BU		Back-up
9	STBY B	Output	Power amplifier control signal output
10	SYSB	Output	Stabilized power output for common system circuits such as for tone quality, volume, and balance
11	TAPEB	Output	Stabilized power output for cassette deck circuits such as for the equalizer amplifier
12, 13	GND(A)		Analog ground
14	AMB	Output	Stabilized power output for AM tuner circuit
15	FMB	Output	Stabilized power output for FM tuner circuit
16	TUNB	Output	Stabilized power output for AM and FM tuner external circuit
17	VCC 5V	Output	Stabilized power output for microcomputer interface and other circuit
18	MUTE	Input	Mute signal input
19	A	Input	Output selection input controlling output by the 3-bit ABC signal
20	B	Input	Output selection input controlling output by the 3-bit ABC signal
21	C	Input	Output selection input controlling output by the 3-bit ABC signal
22	ASENS	Output	ACC line voltage detection output(H for output detection)
23	BSENS	Output	BU line voltage detection output(H for output detection)
24	CTRL	Input	IC status control input for control from outside
25	VDD 5V		Stabilized power source for microcomputer, has backup function

• Pin Functions (PD5156B)

Pin No.	Pin Name	I/O	I/O Format	Function and Operation
1	NC			Not used
2	TEMP			Temperature detector
3	VDSENSE2			Short sense input
4	DCD	Output	NM	Command/data appointment output
5	DCS	Output	NM	Chip select output
6	DRDY	Input		Ready input
7	DRST	Output	NM	Reset output
8	A0	Output	NM	LSI data control signal
9	XSCK	Output	NM	LSI clock output
10	XSO	Output	NM	LSI data output
11	XSI	Input	NM	LSI data input
12	STB	Output	C	LSI strobe output
13	RST	Output	C	Reset output pin
14	ENDOUT	Output	C	Digital output enable signal
15	PEE	Output	C	Beep tone output
16	ASENS	Input		ACC power sense input pin
17	BSENS	Input		Back up power sense input pin
18	BRST	Input		Bus communication reset input pin
19	BSRQ	Output	C	Bus communication service request output pin
20	BRXEN	Input/ Output	C	Bus communication reception enable input pin
21	BSCK	Input/ Output	C	Bus serial clock input/output
22	BSO	Output	C	Serial data output pin
23	BSI	Input		Bus serial data input
24	EJSW	Input		Eject signal input
25	REMIN	Input		Remote control pulse input
26	CNVSS			Gnd
27	RESET	Input		Reset input
28	FECNT	Output	C	
29	NC			Not used
30	XIN	Input		Crystal oscillating element connection pin
31	XOUT	Output	C	Crystal oscillating element connection pin
32	VSS			GND
33—40	NC			Not used
41	POWER	Output	C	CD +5V control
42	CONT	Output	C	Servo driver power supply control
43, 44	NC			Not used
45	VDSENS	Input		Over voltage sense input
46	VDCONT	Output	C	VD control output
47	DSET	Output	C	Disc set indicator control output
48	BLGT	Output	C	LCD back light control output
49	VMC	Output	C	Loading motor driver power supply
50	EJ	Output	C	Loading motor EJECT control
51	LOAD	Output	C	Loading motor LOAD control
52	NC			Not used
53	DINC	Input		Disc insert sense input
54	EJTD	Input		Disc eject position sense input "H":FM, "L":AM
55	CLAMP	Input		Disc clamp sense input
56	NC			Not used

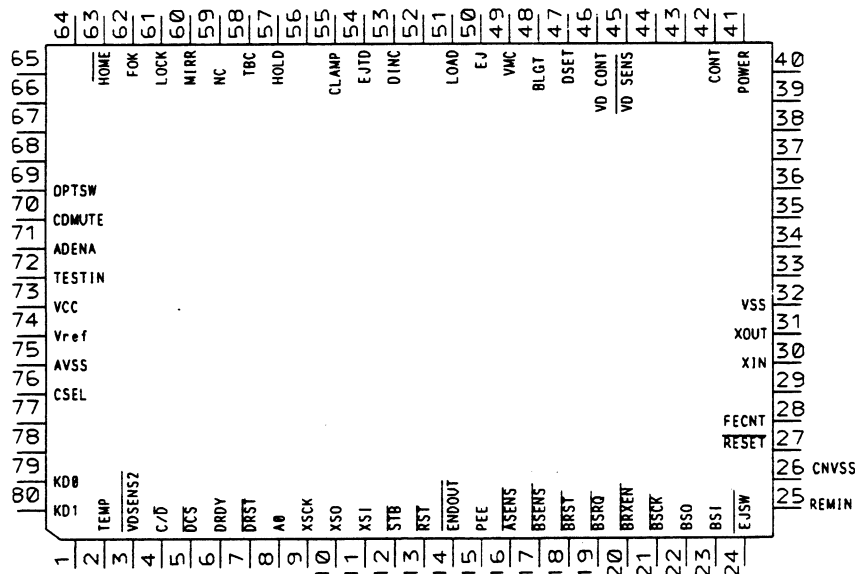
Pin No.	Pin Name	I/O	I/O Format	Function and Operation
57	HOLD	Output	C	Hold control output
58	TBC	Output	C	Tracking bank switching output
59	NC			Not used
60	MIRR	Input		Mirror detector input
61	LOCK	Input		Spindle lock detector input
62	FOK	Input		FOK signal input
63	HOME	Input		Home position detector input
64-68	NC			Not used
69	OPTSW	Input		Digital output ON/OFF input
70	CDMUTE	Output	C	CD mute output
71	ADENA	Output	C	A/D reference voltage output
72	TESTIN	Input		Test program mode input
73	VCC			Back up 5V
74	VREF	Input		A/D reference voltage input
75	AVSS			A/D GND
76	CSEL			Compression select
77,78	NC			Not used
79	KD0			Analog key input 0
80	KD1			Analog key input 1

I/O Format	Meaning
C	CMOS output
NM	Middle resistivity N channel open drain

IC's marked by * are MOS type.

Be careful in handling them because they are very liable to be damaged by electrostatic induction.

* PD5156B

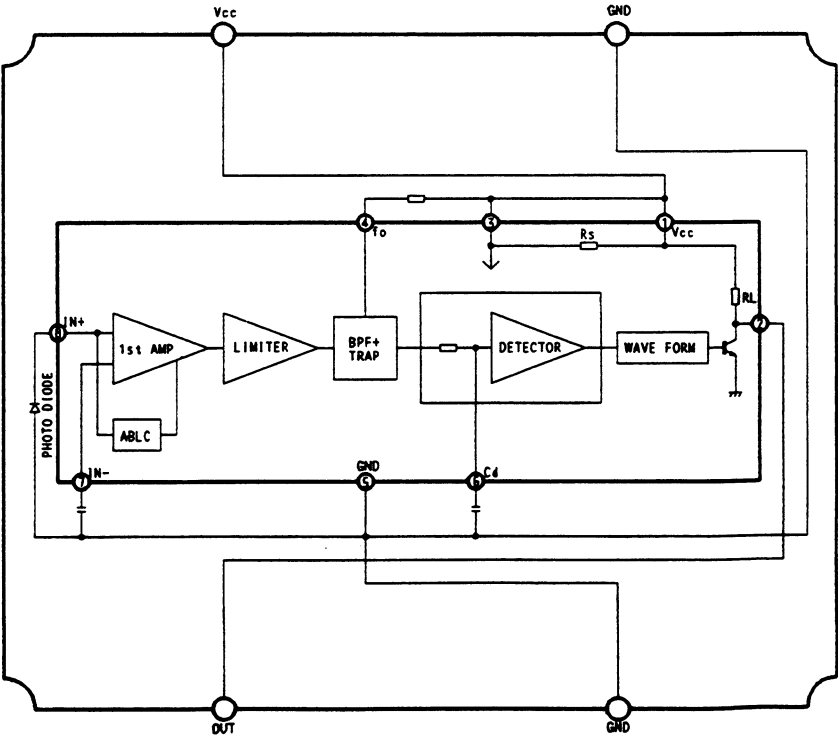
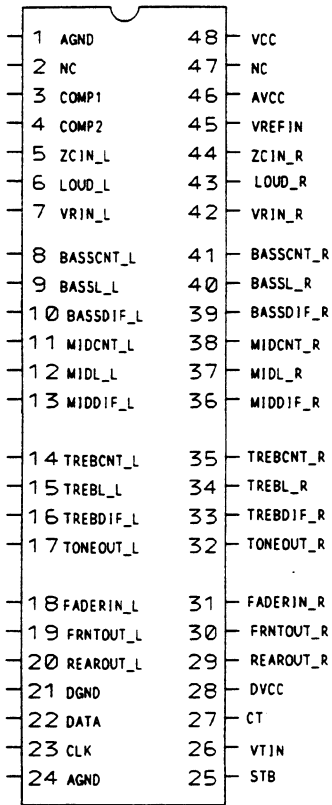


• Pin Functions (PMJ001A)

Pin No	Pin Name	I/O	Function and Operation
1	AGND		Analog GND
2	NC		Non connect
3	COMP1		Reference voltage circuit, phase compensation terminal 1
4	COMP2		Reference voltage circuit, phase compensation terminal 2
5	ZCIN_L	Input	Lch:Zero cross detection circuit input
6	LOUD_L		Lch:Loudness setting terminal
7	VRIN_L	Input	Lch:Input. Hot side of volume
8	BASSCNT_L		Lch:Low frequency control terminal
9	BASSL_L		Lch:Pseudo inductor terminal for low frequencies
10	BASSDIF_L		Lch:Pseudo inductor differential input terminal for low frequencies
11	MIDCNT_L		Lch:Medium frequency control terminal
12	MIDL_L		Lch:Pseudo inductor terminal for medium frequencies
13	MIDDIF_L		Lch:Pseudo inductor differential input terminal for medium frequencies
14	TREBCNT_L		Lch:High frequency control terminal
15	TREBL_L		Lch:Pseudo inductor terminal for high frequencies
16	TREBDIF_L		Lch:Pseudo inductor differential input terminal for high frequencies
17	TONEOUT_L	Output	Lch:Buffer output terminal for the tone control circuit
18	FADERIN_L	Input	Lch:Fader circuit input terminal
19	FRNTOUT_L	Output	Lch:Front buffer output circuit
20	REAROUT_L	Output	Lch:Rear buffer output circuit
21	DGND		Digital GND terminal
22	DATA	Input	Serial data input terminal
23	CLK	Input	Clock input terminal
24	AGND		Analog GND
25	STB	Input	Latch strobe input terminal
26	VTIN	Input	Applies half of digital control power source controlling this IC
27	CT		Time constant terminal for forced switching time setting till zero cross detection
28	DVCC	Input	Digital power source terminal
29	REAROUT_R	Output	Rch:Rear buffer output circuit
30	FRNTOUT_R	Output	Lch:Front buffer output circuit
31	FADERIN_R	Input	Rch:Fader circuit input terminal
32	TONEOUT_R	Output	Rch:Buffer output terminal for the tone control circuit
33	TREBDIF_R		Rch:Pseudo inductor differential input terminal for high frequencies
34	TREBL_R		Rch:Pseudo inductor terminal for high frequencies
35	TREBCNT_R		Rch:High frequency control terminal
36	MIDDIF_R		Rch:Pseudo inductor differential input terminal for low frequencies
37	MIDL_R		Rch:Pseudo inductor terminal for medium frequencies
38	MIDCNT_R		Rch:Medium frequency control terminal
39	BASSDIF_R		Rch:Pseudo inductor differential input terminal for low frequencies
40	BASSL_R		Rch:Pseudo inductor terminal for low frequencies
41	BASSCNT_R		Rch:Low frequency control terminal
42	VRIN_R	Input	Rch:Input. Hot side of volume
43	LOUD_R		Rch:Loudness setting terminal
44	ZCIN_R	Input	Rch:Zero cross detection circuit input

Pin No	Pin Name	I/O	Function and Operation
45	VREFIN	Input	Reference voltage input terminal
46	AVCC	Output	Internal stabilized power source terminal
47	NC		
48	VCC		Power terminal

PMJ001A



• Pin Functions (PD4389C)

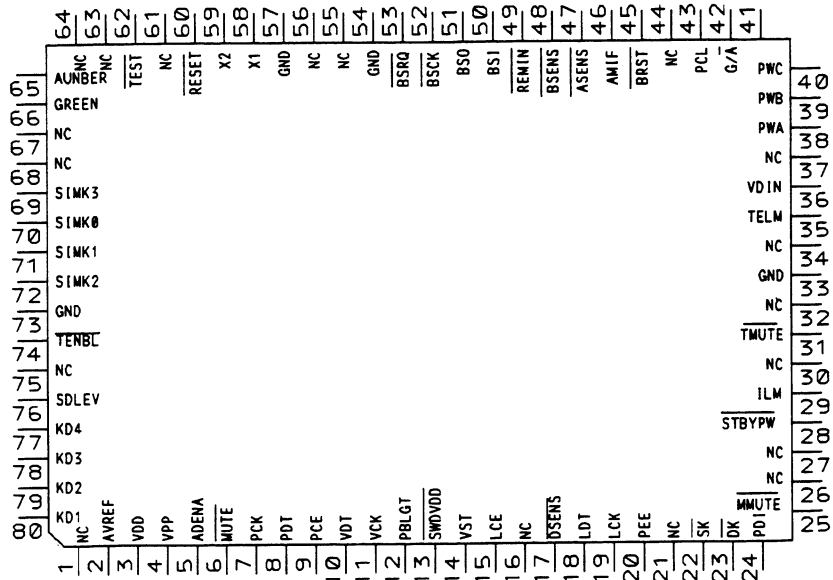
Pin No.	Pin Name	I/O	Output Format	Function and Operation
1	NC	Input		GND
2	AVREF	Input		A/D converter reference voltage input
3	VDD			VDD
4	VPP			PROM write power supply
5	ADENA	Output	C	AVREF enable output
6	MUTE	Output	C	System mute output
7	PCK	Output	C	Clock output for PLL control IC
8	PDT	Output	C	Data output for PLL control IC
9	PCE	Output	C	Chip enable for PLL control IC
10	VDT	Output	C	Data output for electronic volume IC
11	VCK	Output	C	Clock output for electronic volume IC
12	PBLGT			Not used
13	SWDVDD	Output	C	Power supply control for display unit ICs
14	VST	Output	C	Strobe output for electronic volume IC
15	LCE	Output	C	Chip enable for LCD driver IC
16	NC			
17	DSSENS			Not used
18	LDT	Output	C	Data output for LCD driver
19	LCK	Output	C	Clock output for LCD driver
20	PEE	Output	C	Beep tone output
21	NC			
22	SK	Input		SK signal input
23	DK	Input		DK signal input
24	PDI	Input		Data input from PLL control IC
25	MMUTE	Output	C	Multi-CD mute output
26, 27	NC			
28	STBYPW	Output	C	Power supply IC stand-by output
29	ILM			Not used
30	NC			
31	TMUTE	Output	NM	Tuner mute output
32	NC			
33	GND			GND
34	NC			
35	TELM	Input		Telephone mute input
36	VDIN	Input		VD sense input
37	NC			
38~40	PWA~PWC	Output	C	Power supply IC control output
41	BRXEN	Input/ Output	C	Bus reception enable input/output
42	G/A			Not used
43	PCL	Output	C	Clock adjustment test point
44	NC			
45	BRST	Output	C	Bus reset output
46	AMIF	Input		AM IF input pin
47	ASENS	Input		ACC power supply sensor input
48	BSSENS	Input		BACK UP power supply sensor input
49	REMIN	Input		Remote control pulse input
50	BSI	Input		Bus serial data input
51	BSO	Output	C	Bus serial data output

Pin No.	Pin Name	I/O	Output Format	Function and Operation
52	BSCK	Input/Output	C	Bus serial clock input/output
53	BSRQ	Input		Polling request input
54, 57	GND			
55, 56	NC			
58	X1			Crystal oscillating element connection pin
59	X2			Crystal oscillating element connection pin
60	RESET	Input		Reset input
61	NC			
62	TEST	Input		TEST mode input pin
63, 64	NC			
65	AUNBER	Output	NM	Dual illumination amber(red) output
66	GREEN	Output	NM	Dual illumination green output
67, 68	NC			
69	SIMK3	Input		Model select input 3
70	SIMK0	Input		Model select input 0
71	SIMK1	Input		Model select input 1
72	SIMK2	Input		Model select input 2
73	GND			Gnd
74	TENBL			Not used
75	NC			
76	SDLEV	Input		Signal level input
77~80	KD4~KD1	Input		Key return input

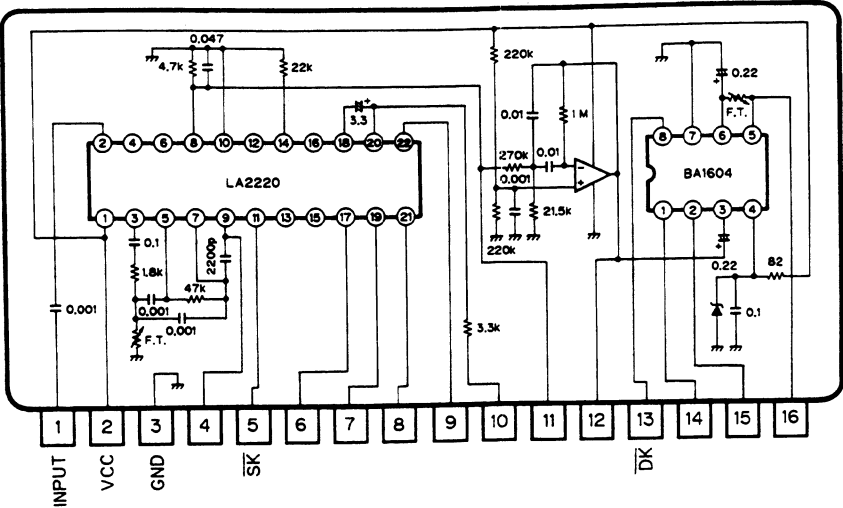
I/O Format	Meaning
C	CMOS output
NM	Middle resistivity N channel open drain

IC's marked by * are MOS type.
Be careful in handling them because they are very liable to be damaged by electrostatic induction.

*PD4389C



KHA172



• FM FRONT END (CWB1035)

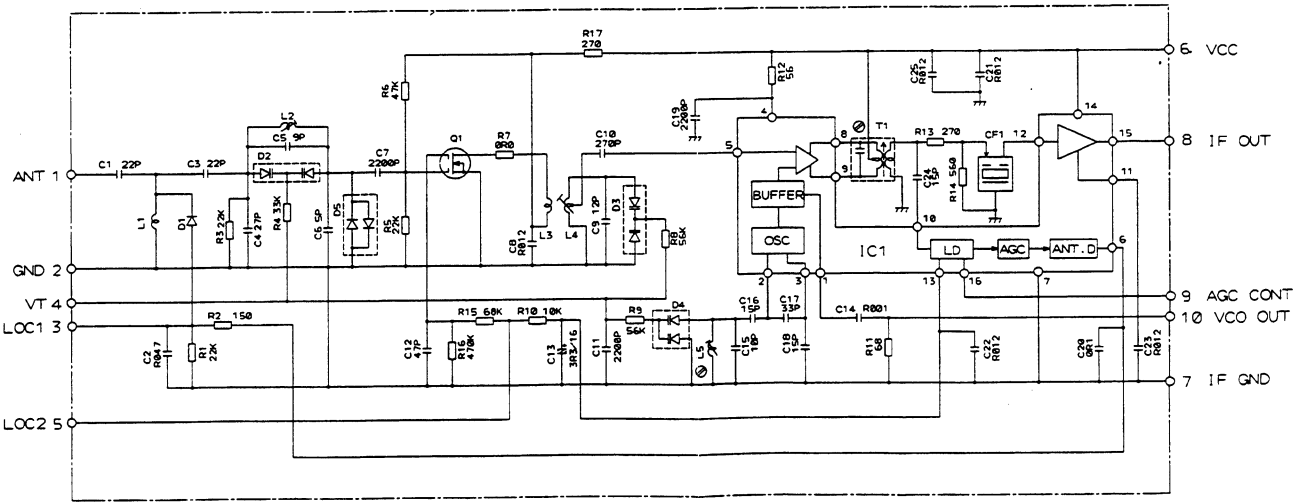


Fig. 42

• LCD (CAW1143)

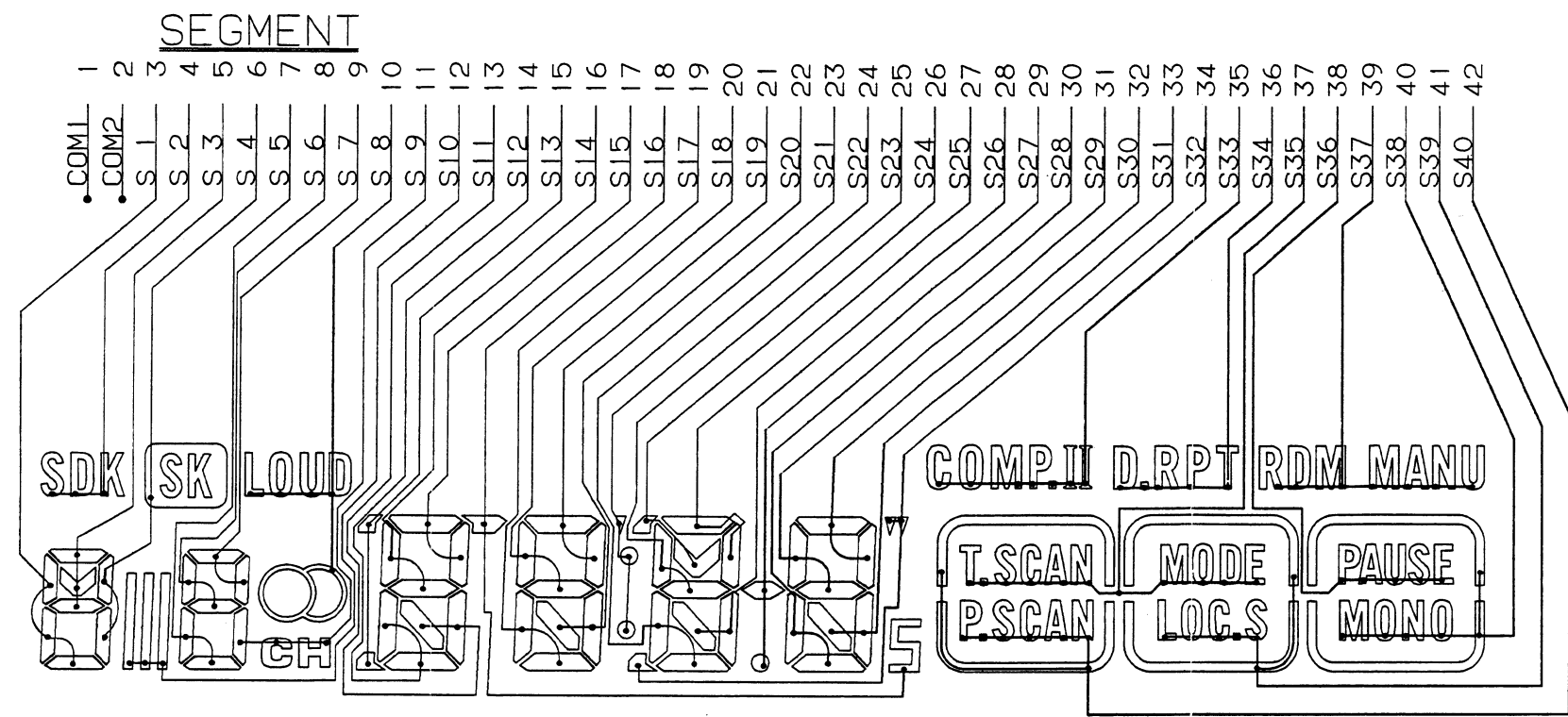


Fig. 43

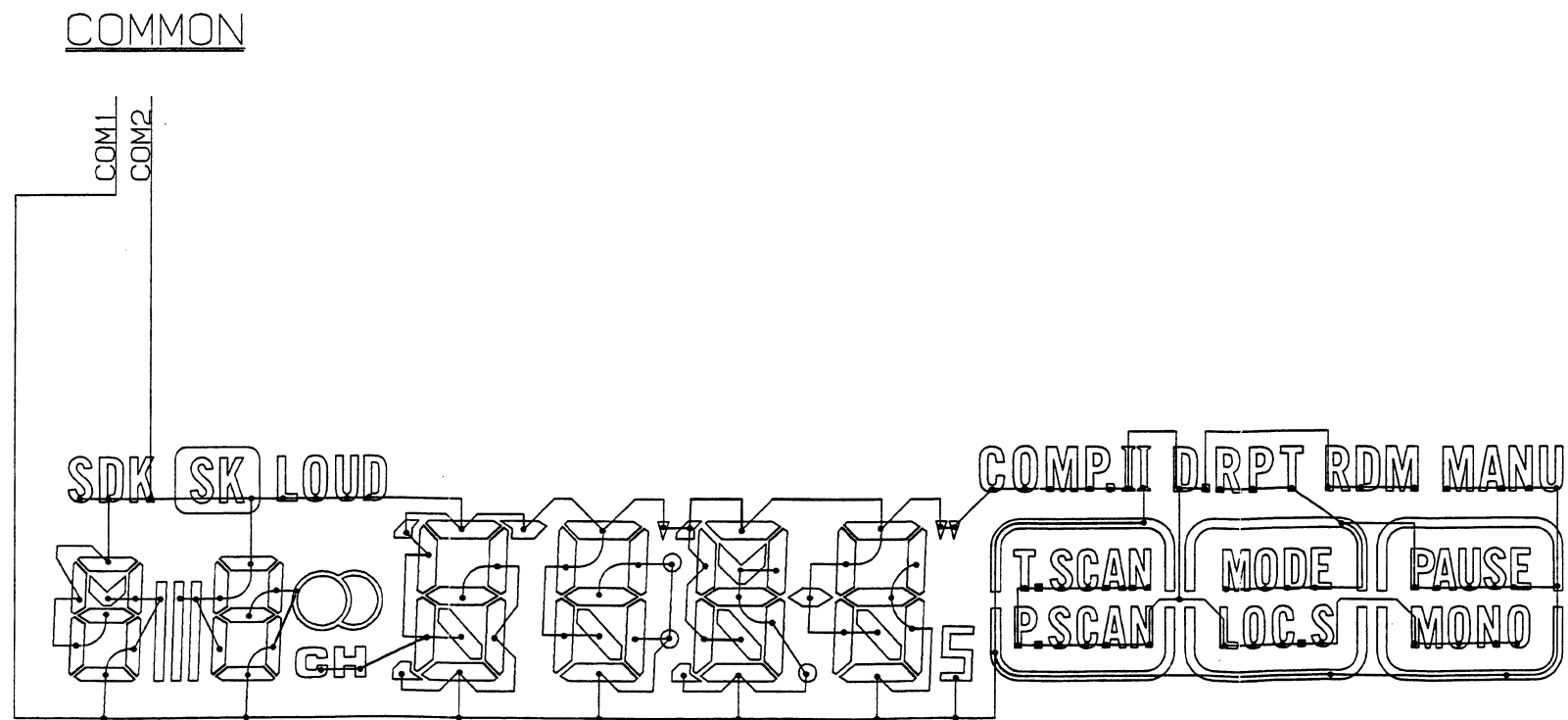


Fig. 44

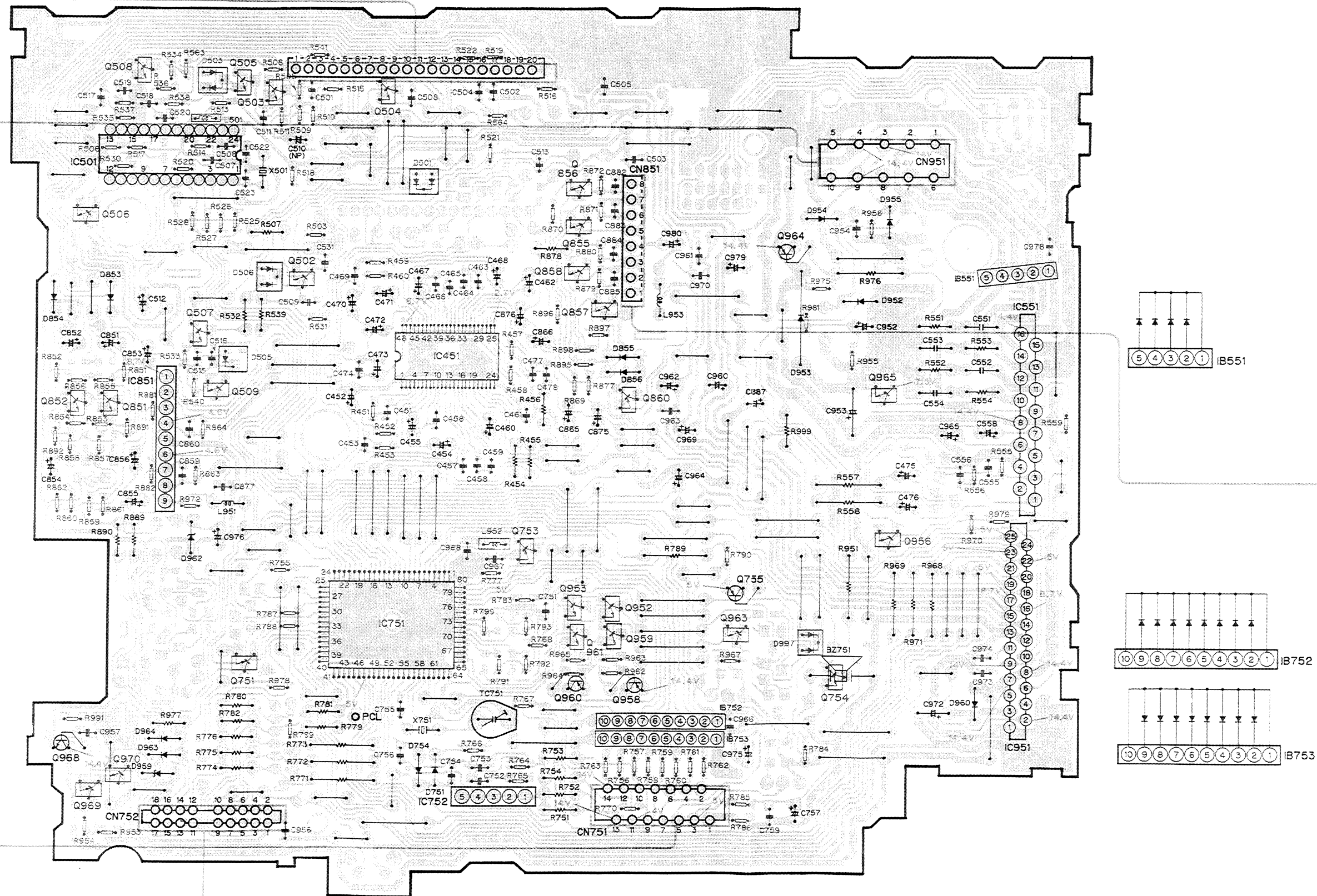


D



TUNER AMP UNIT

Q969 Q852 Q506 Q851 Q507 IC501 Q505 Q502 IC752 Q953 Q856 Q860 Q961 Q855 Q952 Q963 Q755 Q964 Q754 Q965 Q956 IC951 IC551
 IC Q968 Q970 Q508 IC851 Q509 Q751 Q503 IC751 Q504 IC451 Q753 Q960 Q858 Q958 Q755 Q754 Q965 Q956 IC951 IC551
 ADJ TC751



TO CONTROL UNIT

Fig. 48

11.3 TUNER AMP UNIT AND DISPLAY UNIT (DEH-690SDK/WG)

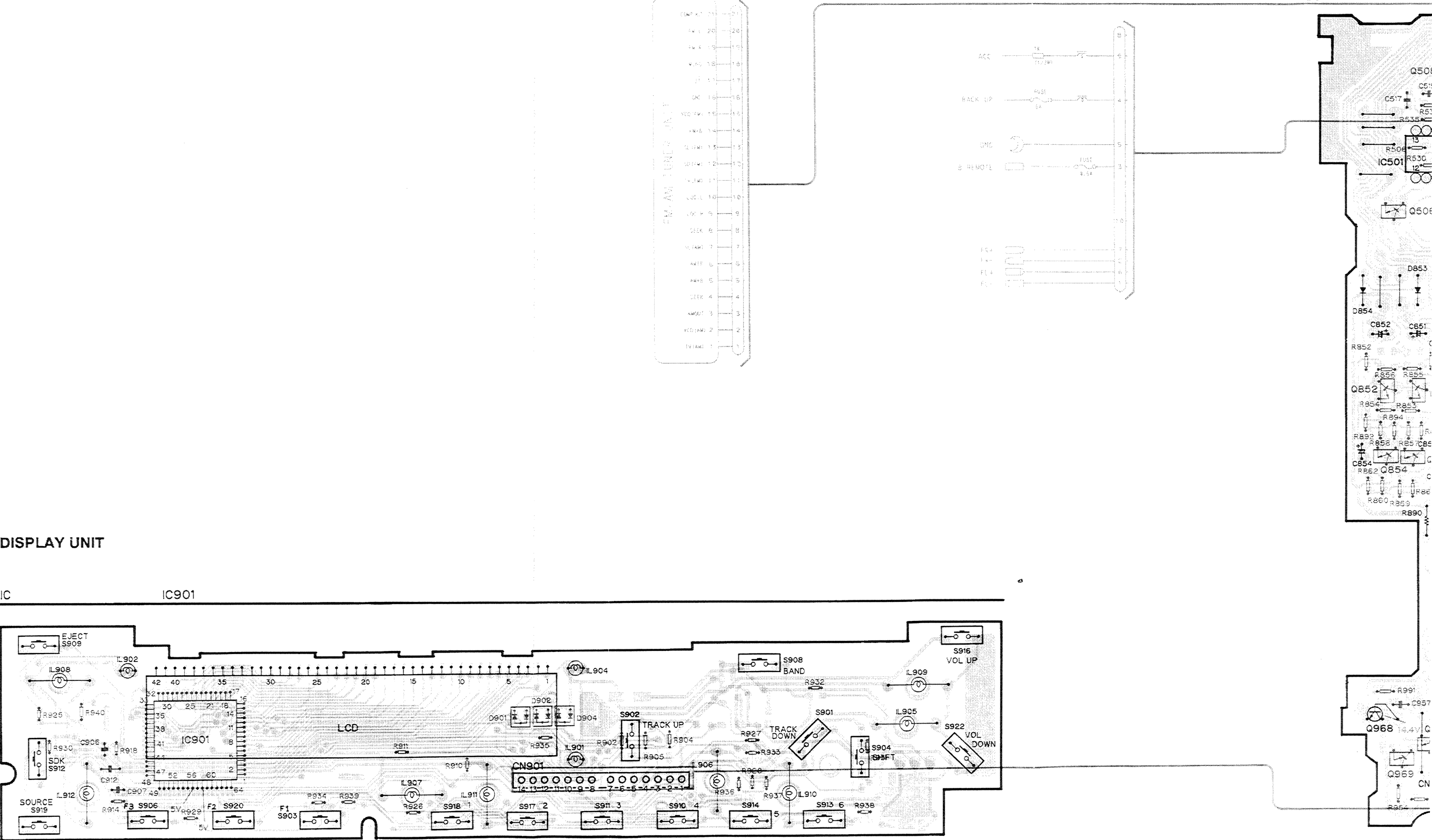
Q506 Q851
Q969 Q852 Q853
IC. Q Q968 Q854 Q970
ADJ

A

B

C

D



TUNER AMP UNIT

Q506 Q851 Q507 Q505 Q502 Q953 Q856 Q860 Q964 Q965 Q952 Q961 Q855 Q959 Q963 Q960 Q858 Q755 Q754 Q956 IC951 IC551
 IC, Q Q968 Q854 Q970 Q508 IC851 Q509 Q751 Q503 IC751 Q504 IC502 IC451 Q501 Q753 Q960 Q858 Q755 Q754 Q956 IC951 IC551
 ADJ TC751

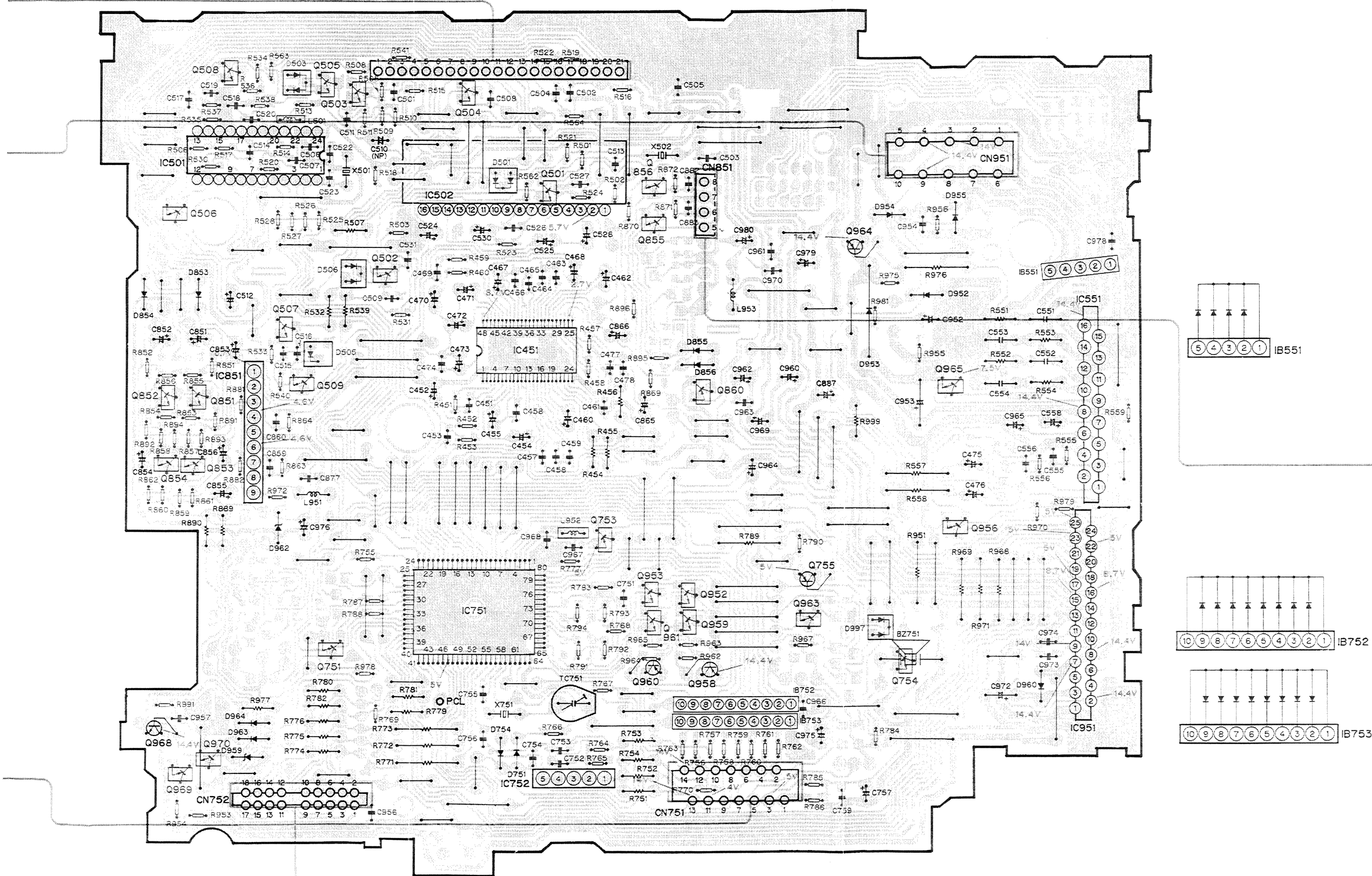


Fig. 49



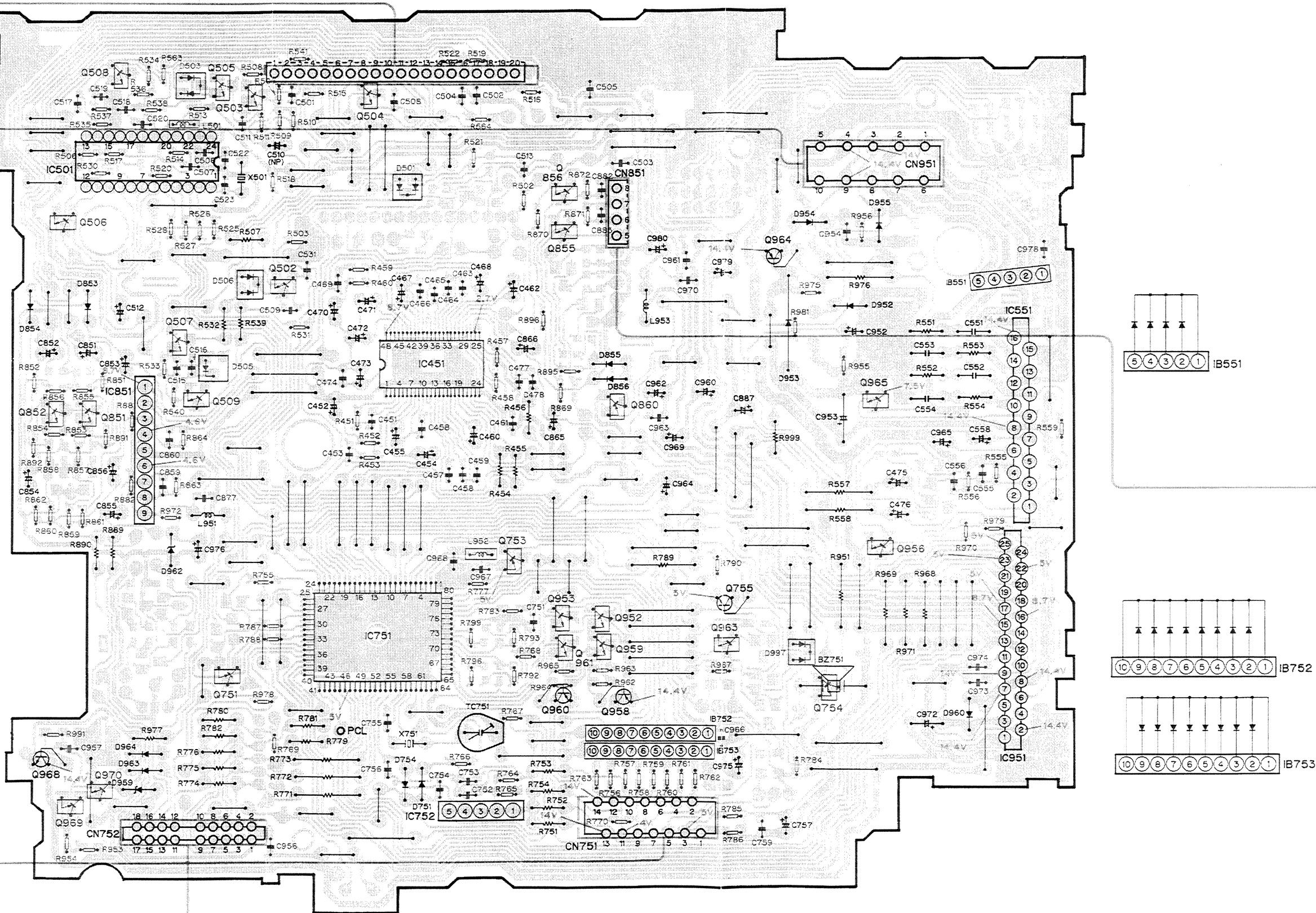
C

D



[illegible]

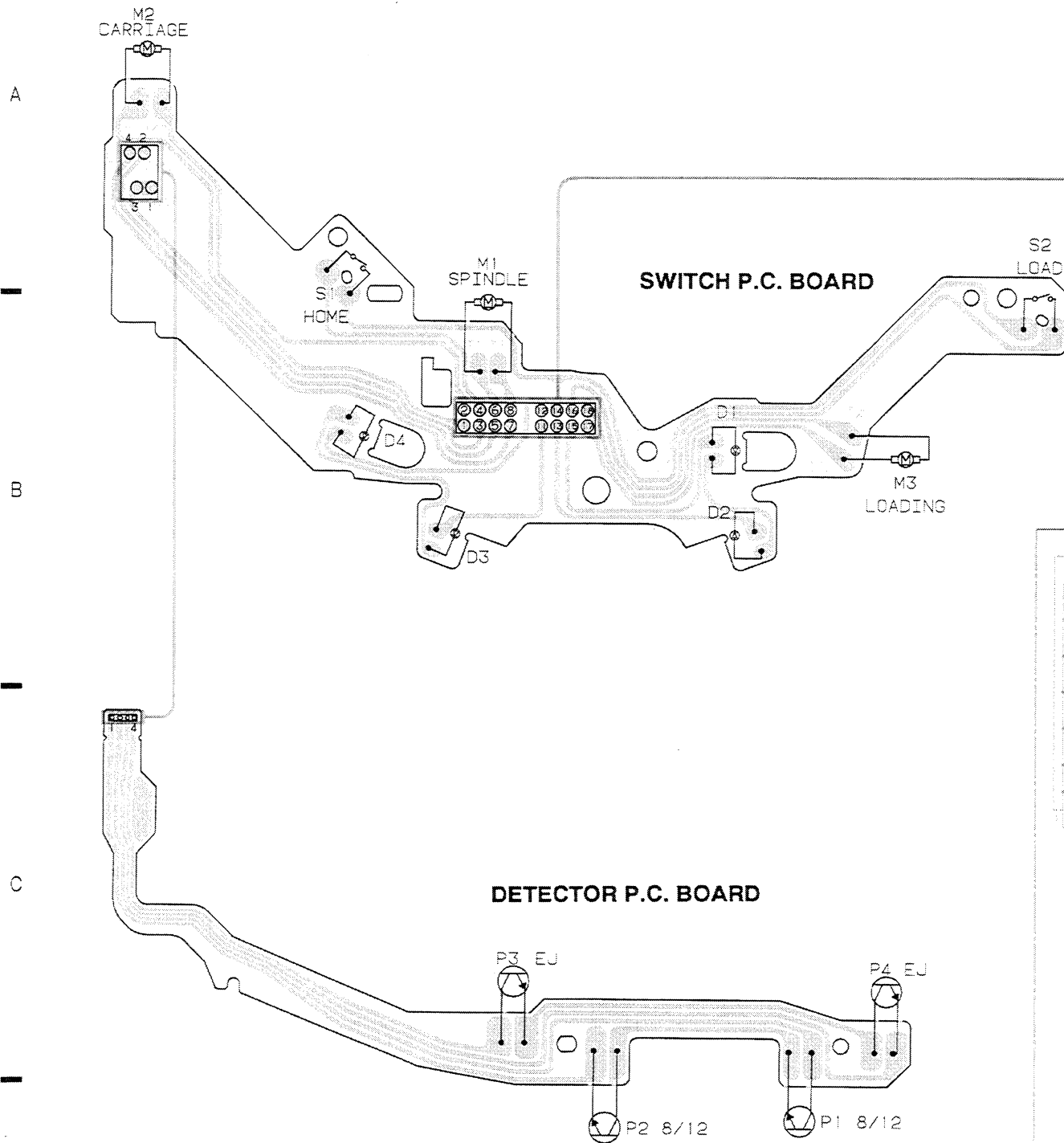
TC751



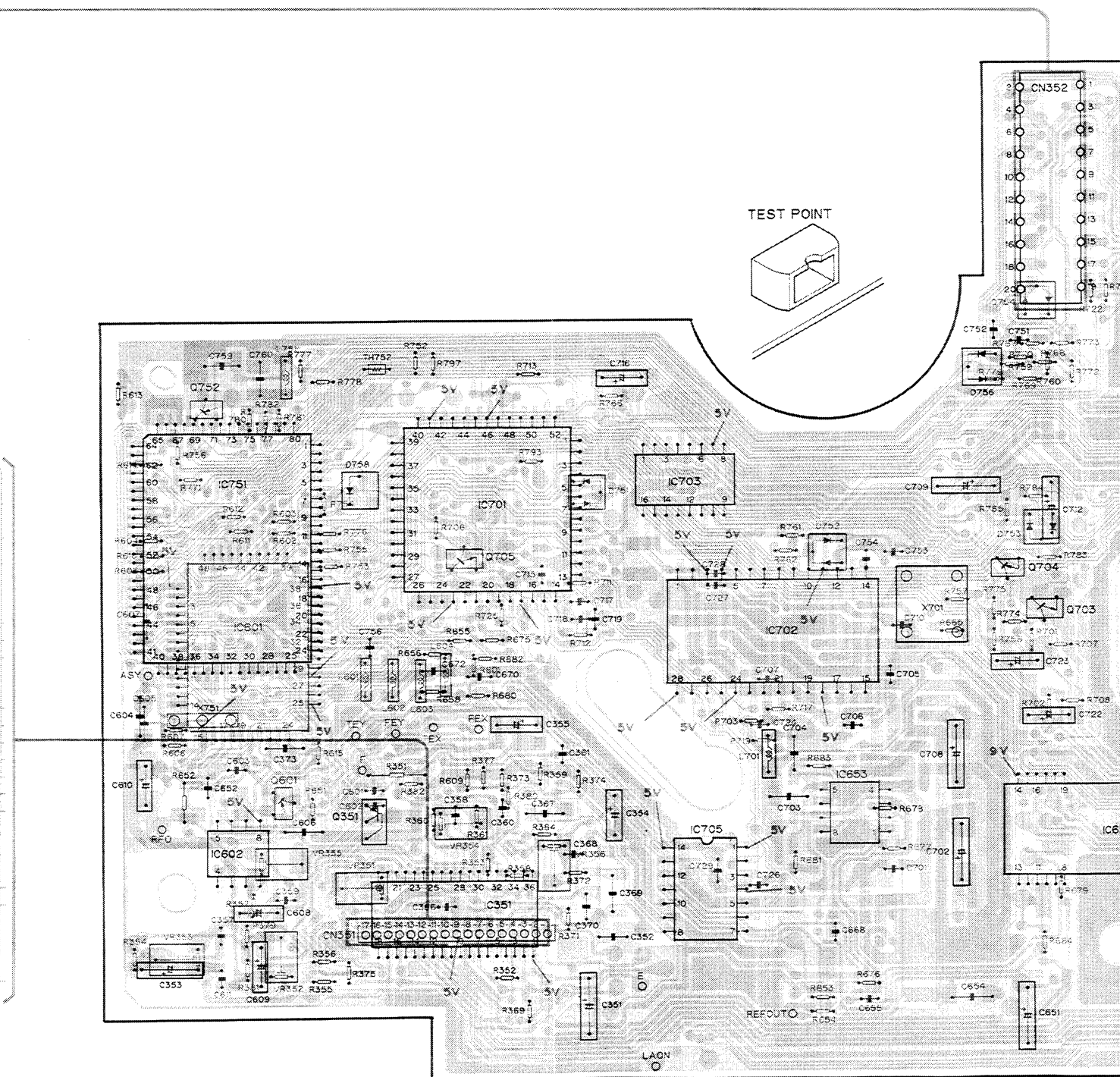
TO CONTROL UNIT

Fig. 52

11.5 CD MECHANISM MODULE



CONTROL UNIT (CWX1375)(DEH-790/EW, DEH-690/EW)



CONTROL UNIT (CWX1455)(DEH-790SDK/WG, DEH-690SDK/WG)

A

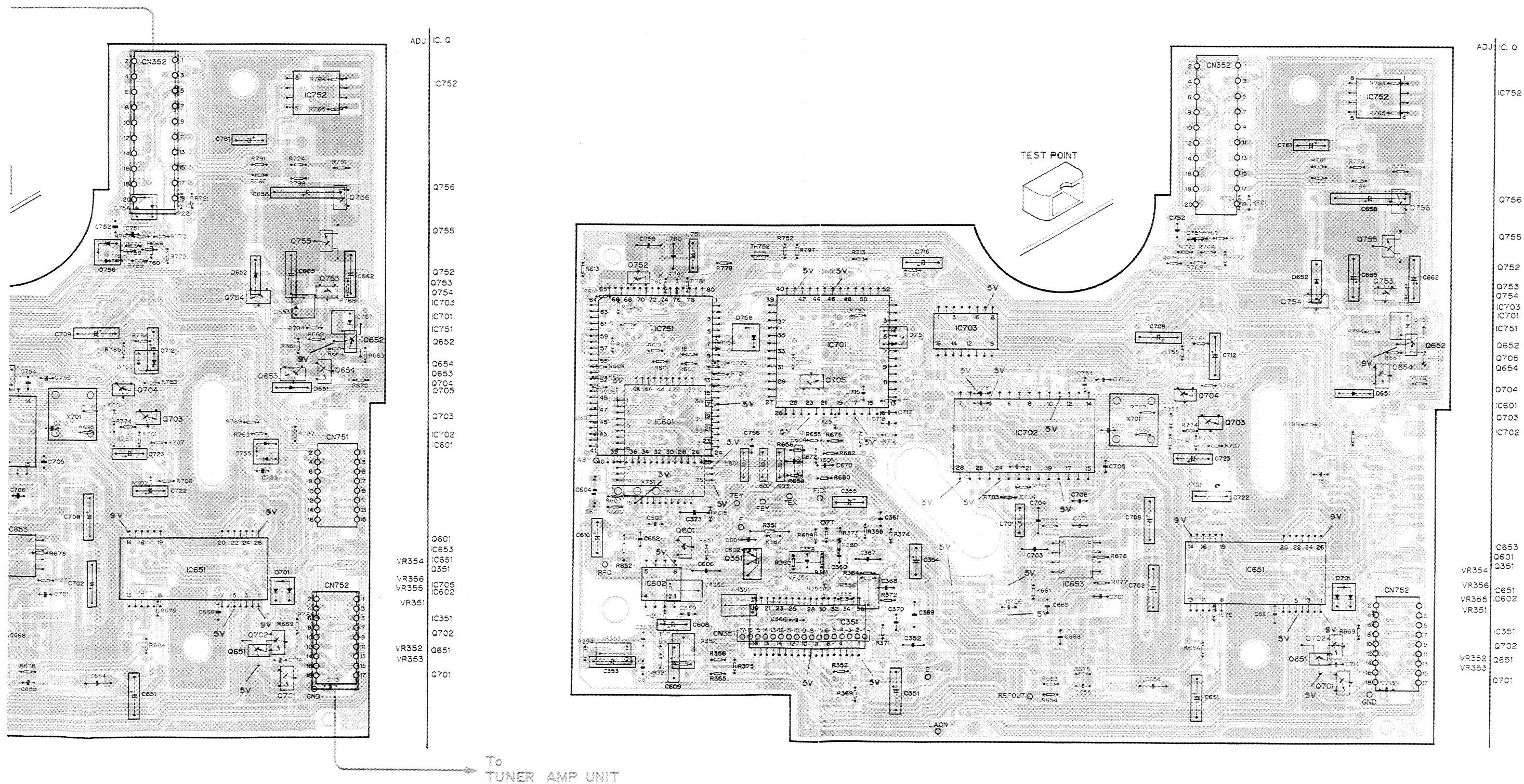
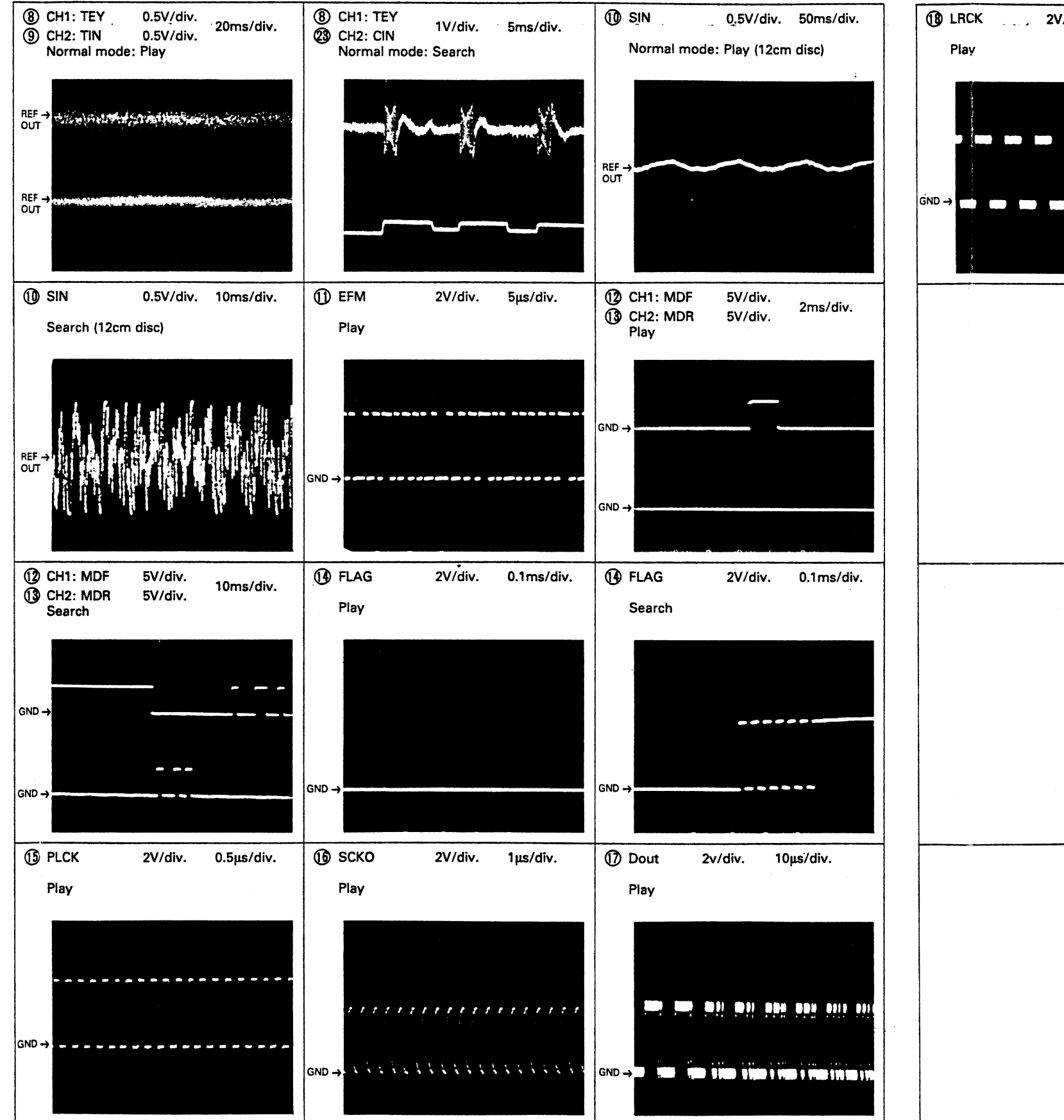
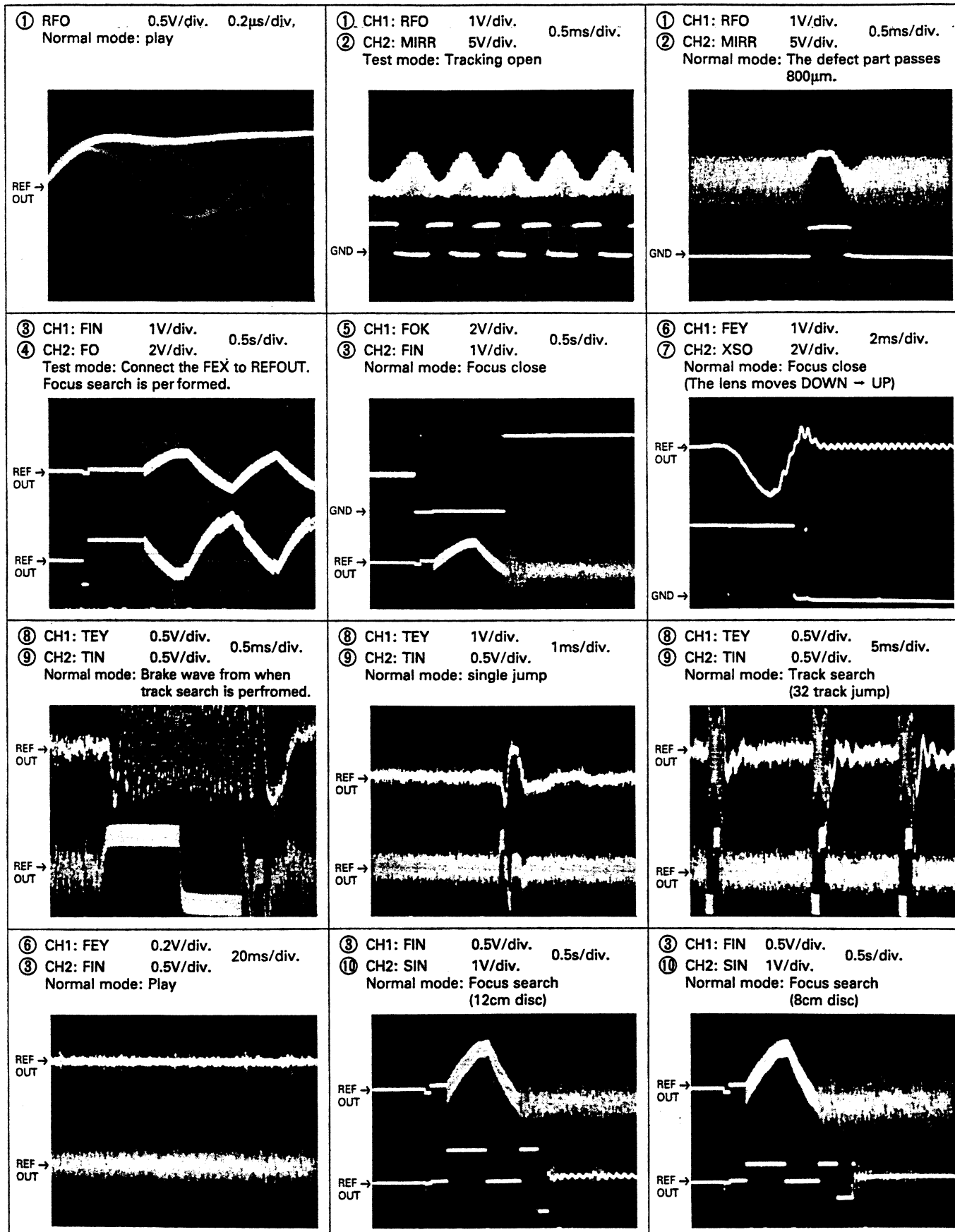


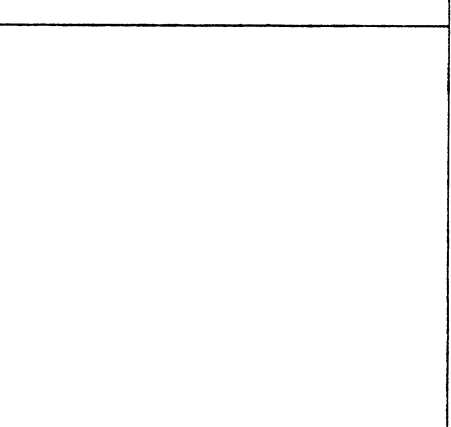
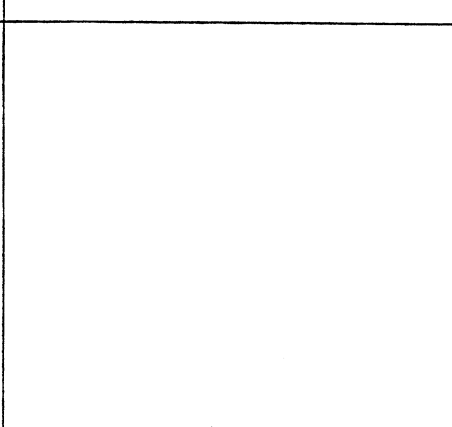
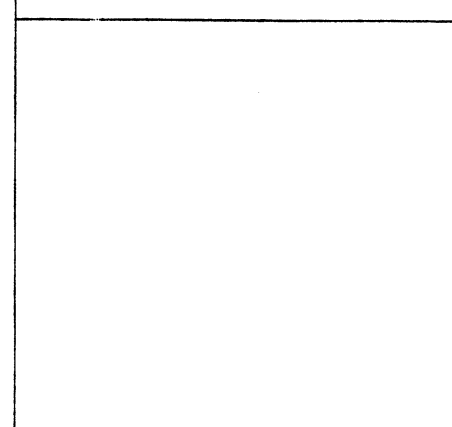
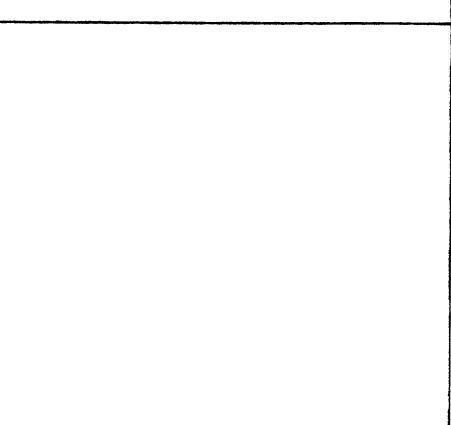
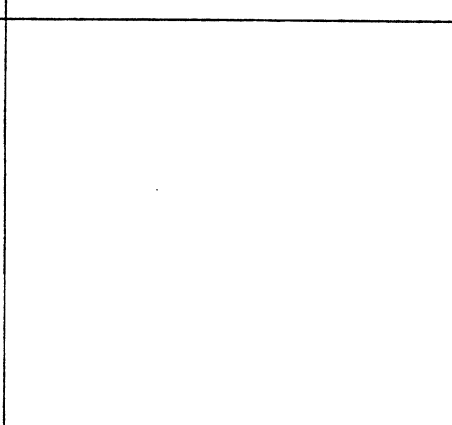
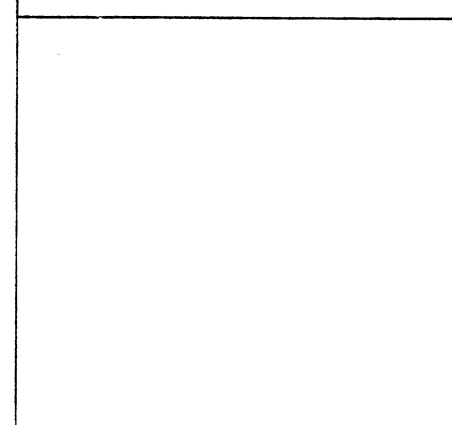
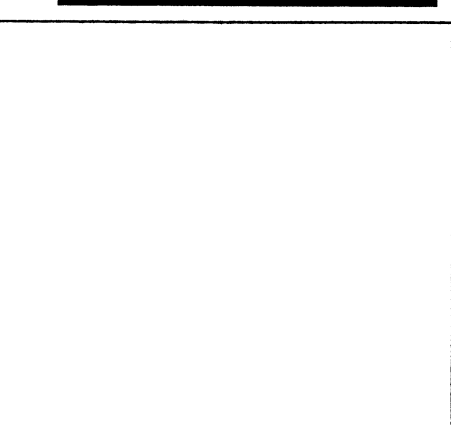
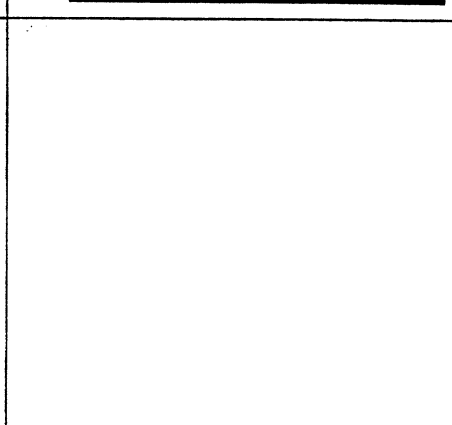
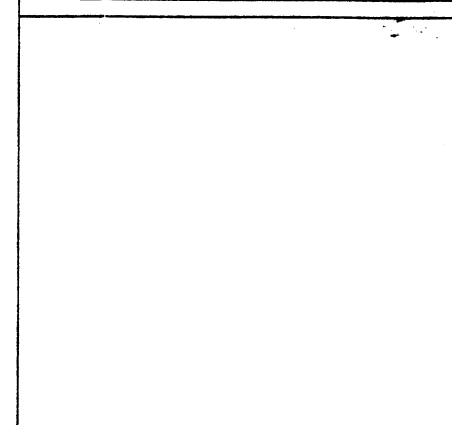
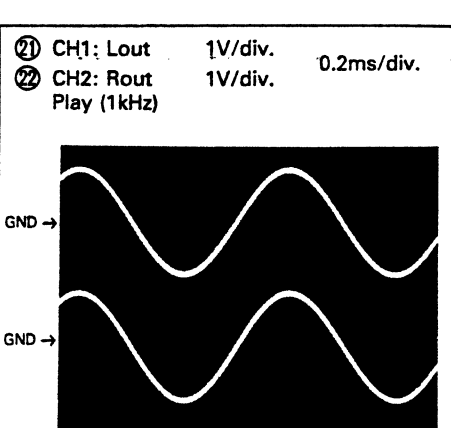
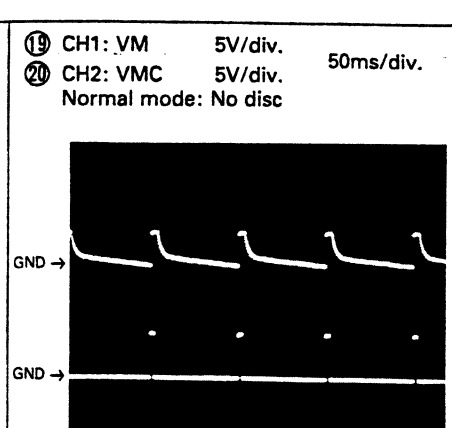
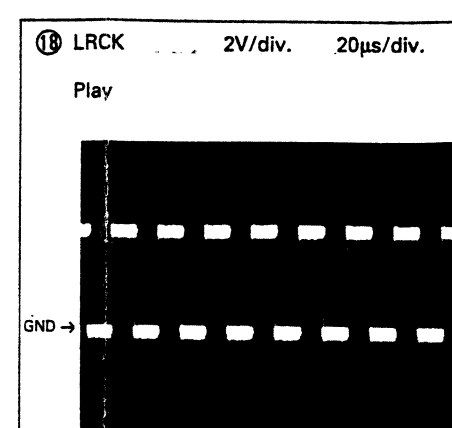
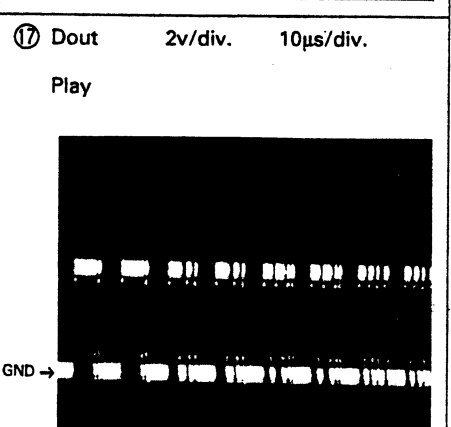
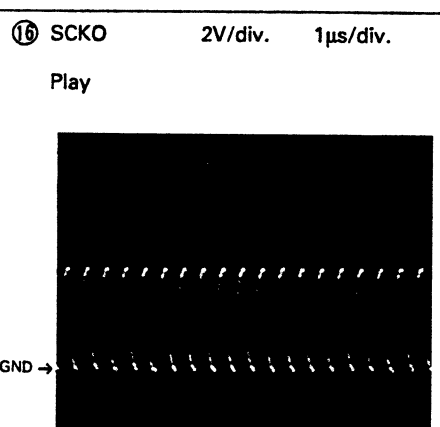
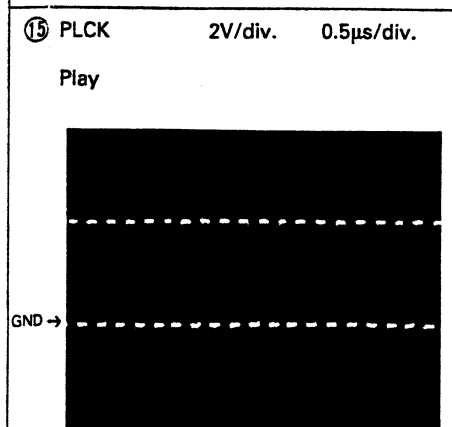
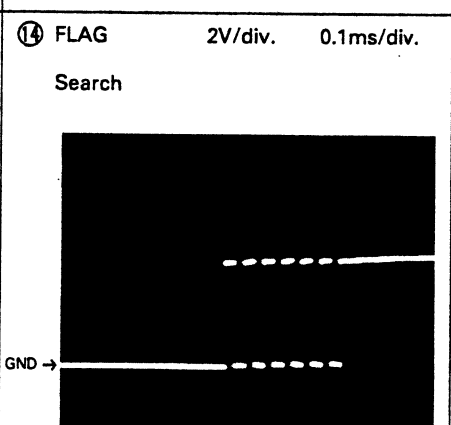
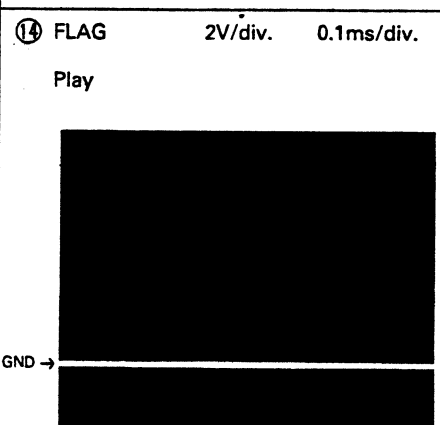
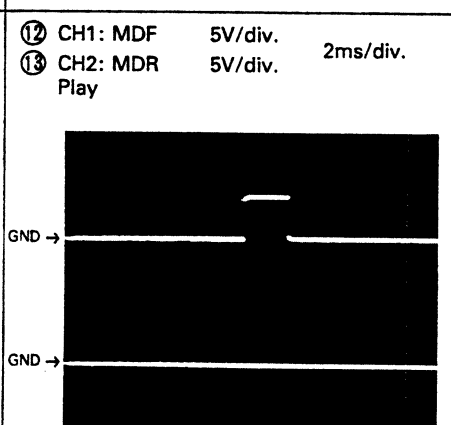
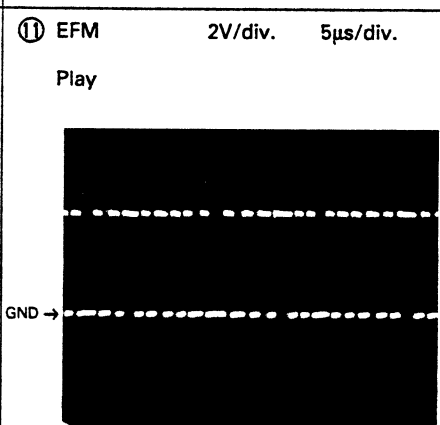
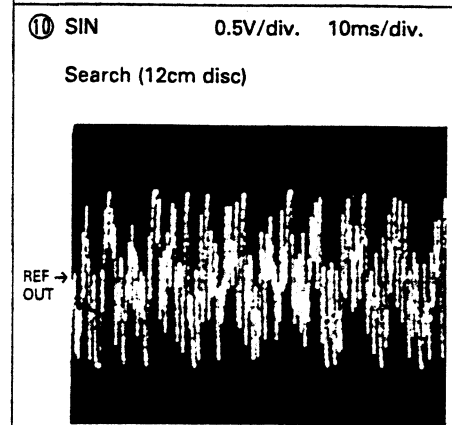
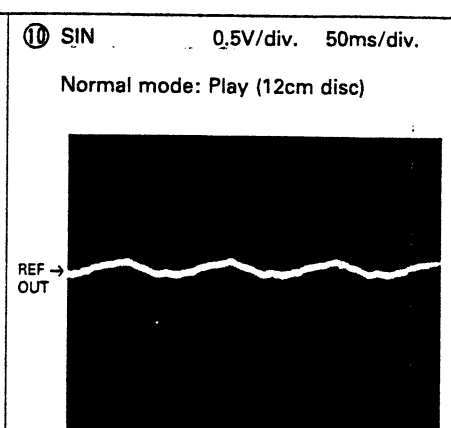
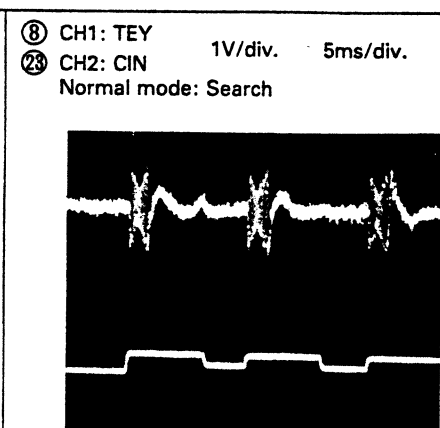
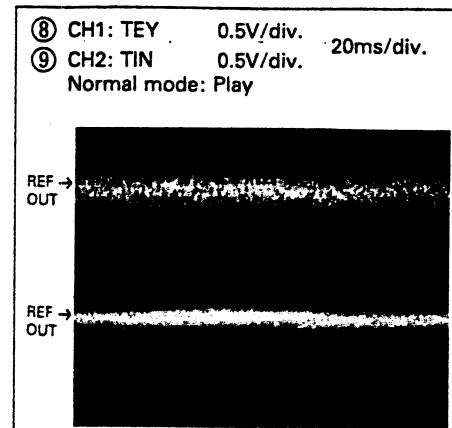
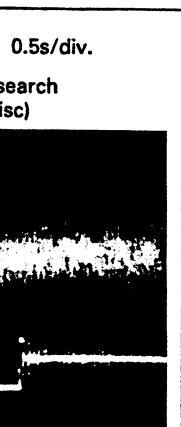
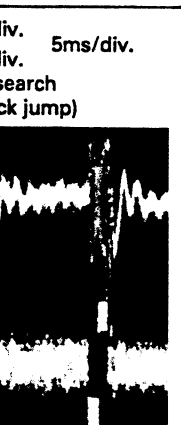
Fig. 53

Wave Forms

Note: 1. The encircled numbers denote measuring points in the circuit diagram.
2. Reference voltage
REFOUT: 2.5V



circuit diagram.



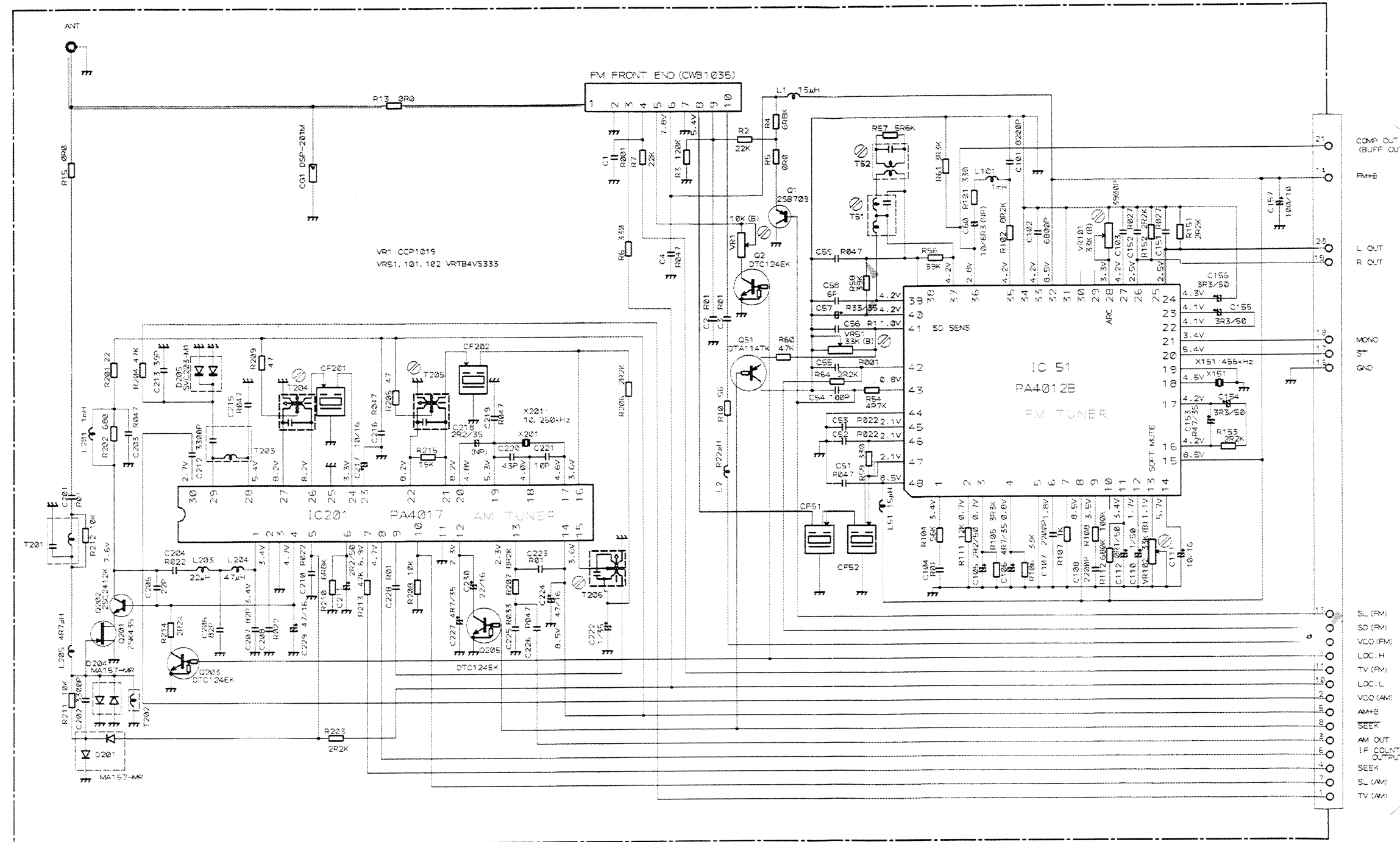
11.6 FM/AM TUNER UNIT (DEH-790SDK/WG, DEH-690SDK/WG)

A

B

C

D



NOTE:

- Symbol indicates a resistor. No differentiation is made between chip resistors and discrete resistors.
- Symbol indicates a capacitor. No differentiation is made between chip capacitors and discrete capacitors.

Decimal points for resistor and capacitor fixed values are expressed as:
2.2→2R2
0.022→R022

IC, Q
ADJ T52 VR101 VR51
T51

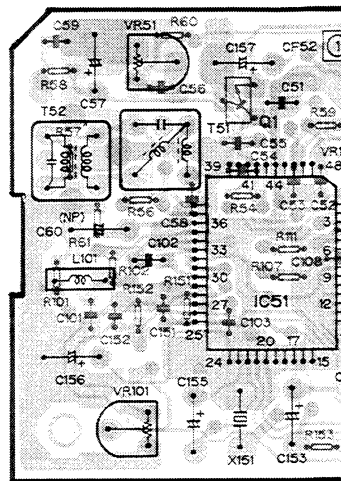


Fig. 55

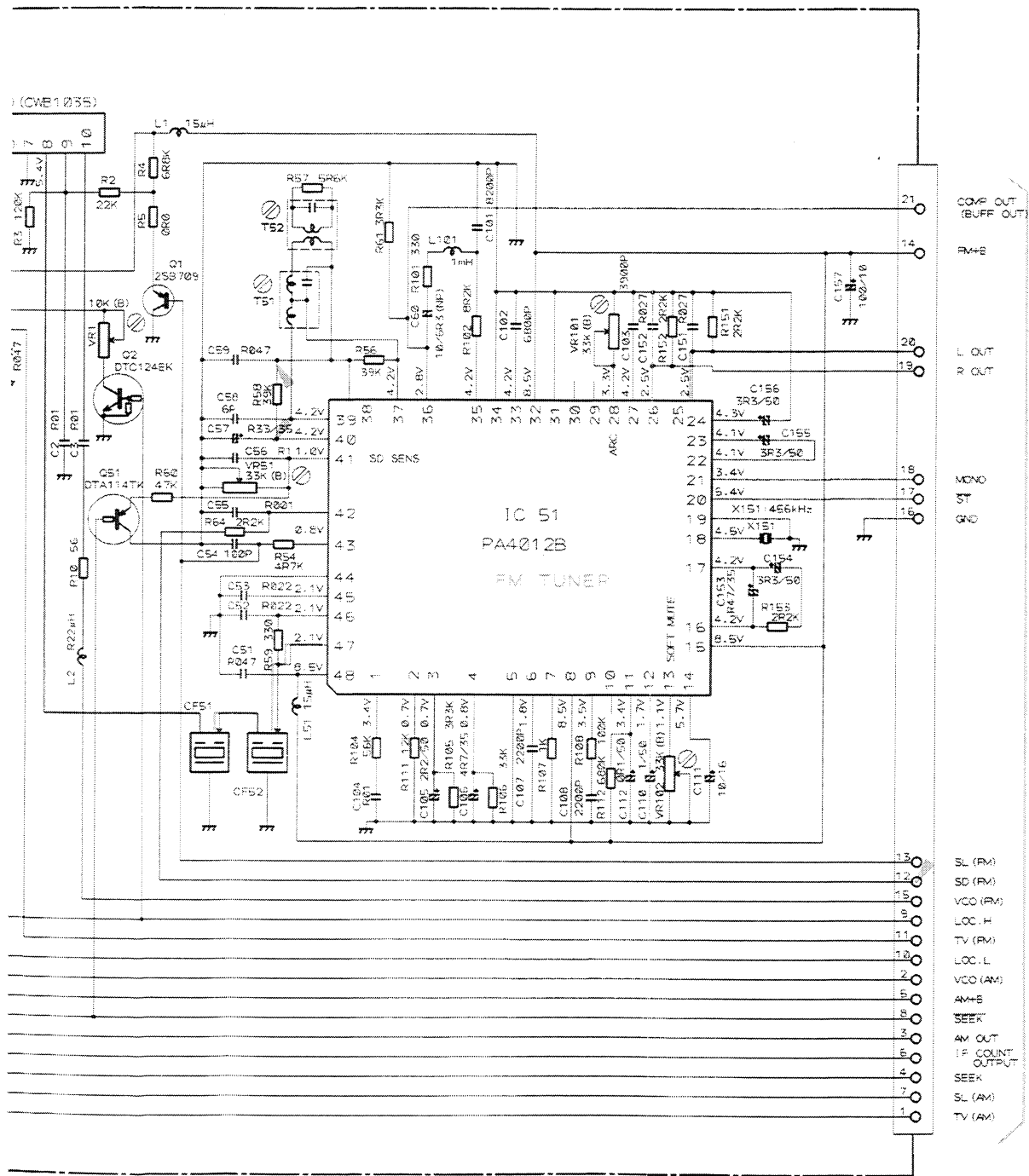


Fig. 55

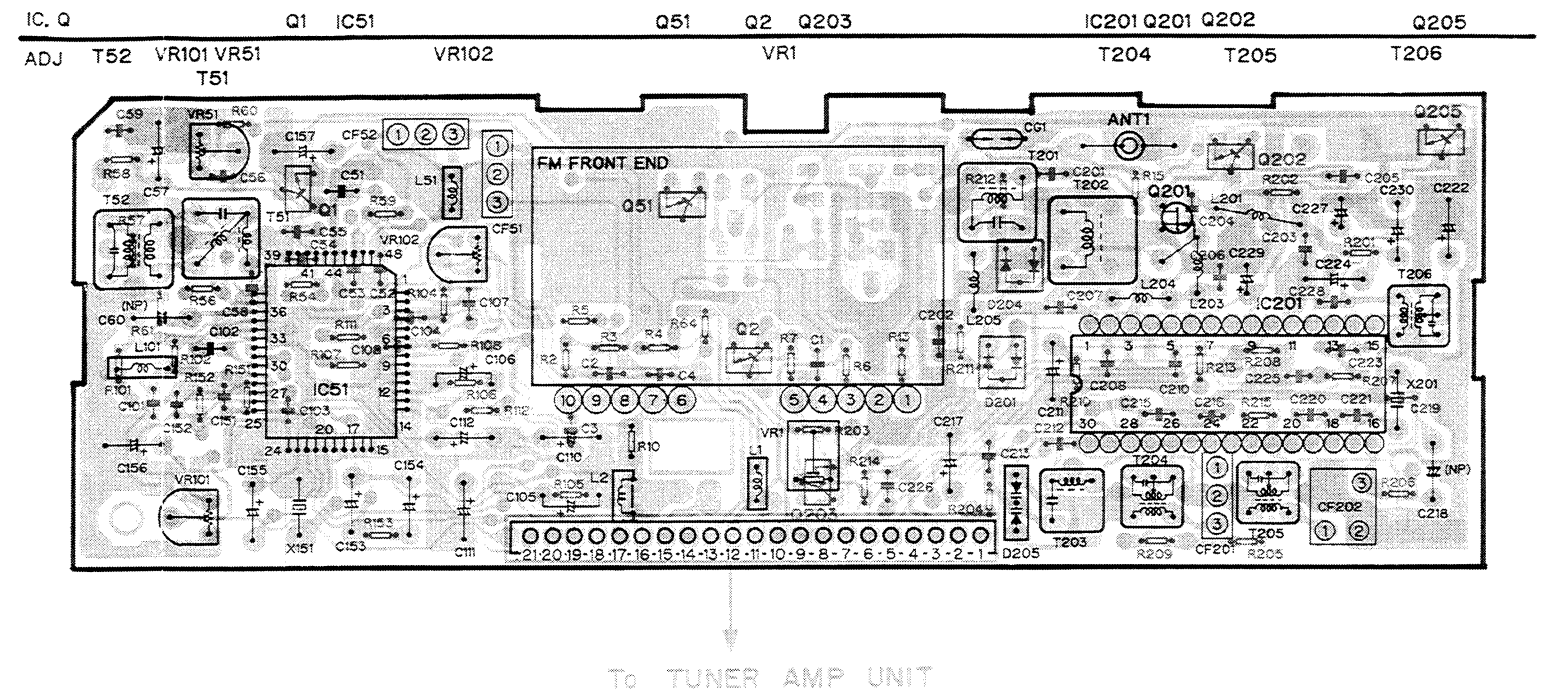
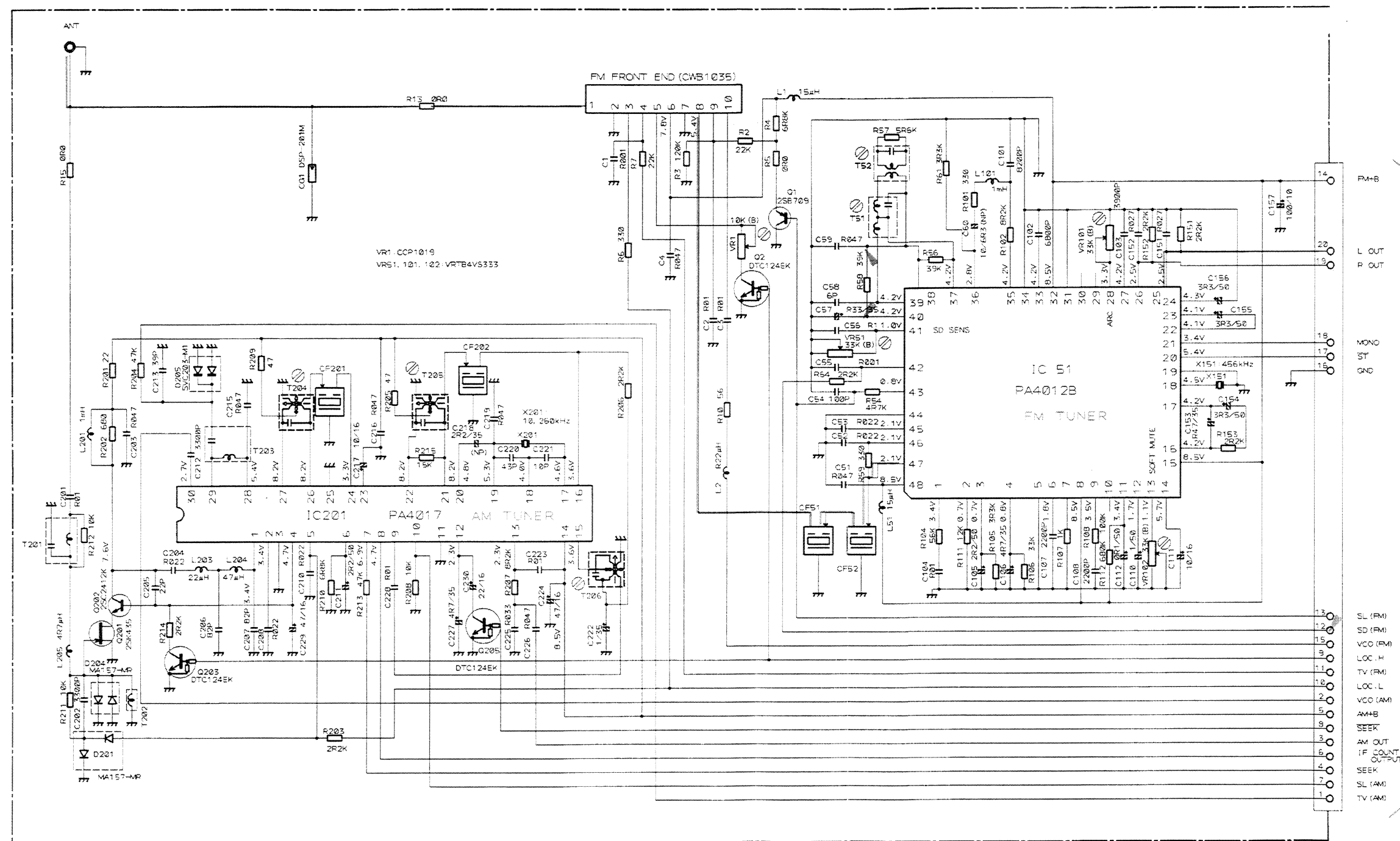


Fig. 56

11.7 FM/AM TUNER UNIT (DEH-790/EW, X1B, DEH-690/EW, X1B)



NOTE:
□ Symbol indicates a resistor.
No differentiation is made between chip resistors and discrete resistors.
+ Symbol indicates a capacitor.
No differentiation is made between chip capacitors and discrete capacitors.

Decimal points for resistor and capacitor fixed values are expressed as
2.2→2R2
0.022→R022

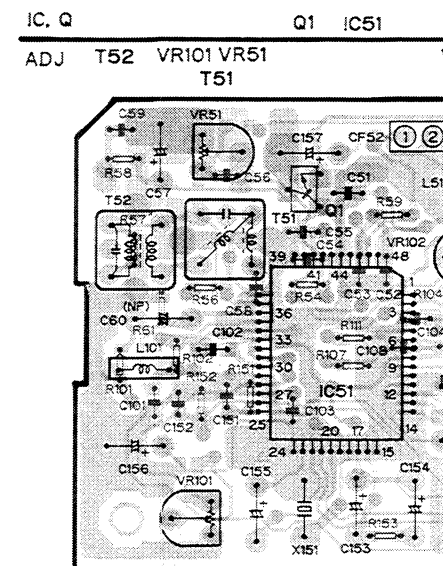
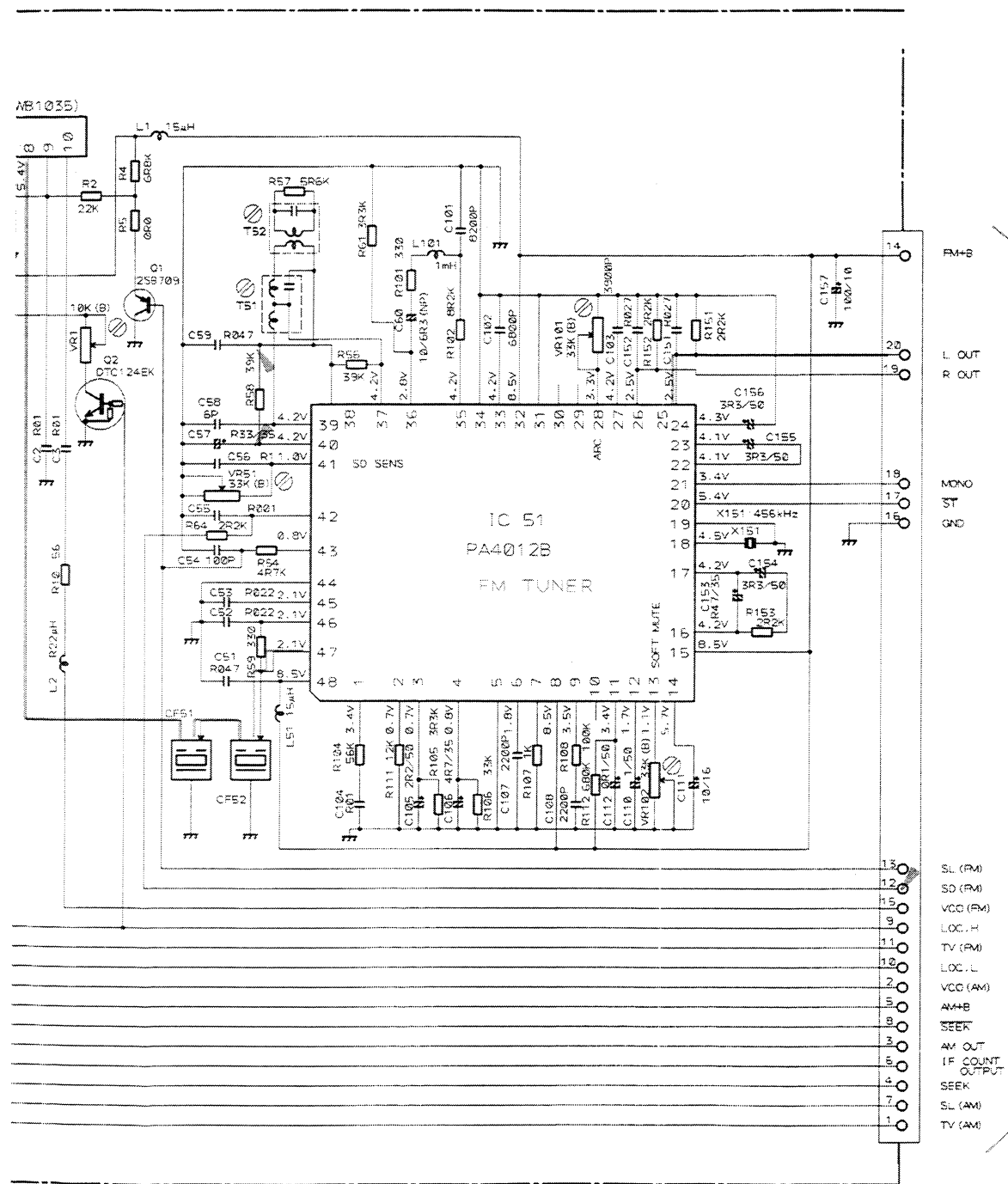


Fig. 57



Decimal points for resistor
and capacitor fixed values
are expressed as:
2.2-2R2
0.022-0022

Fig. 57

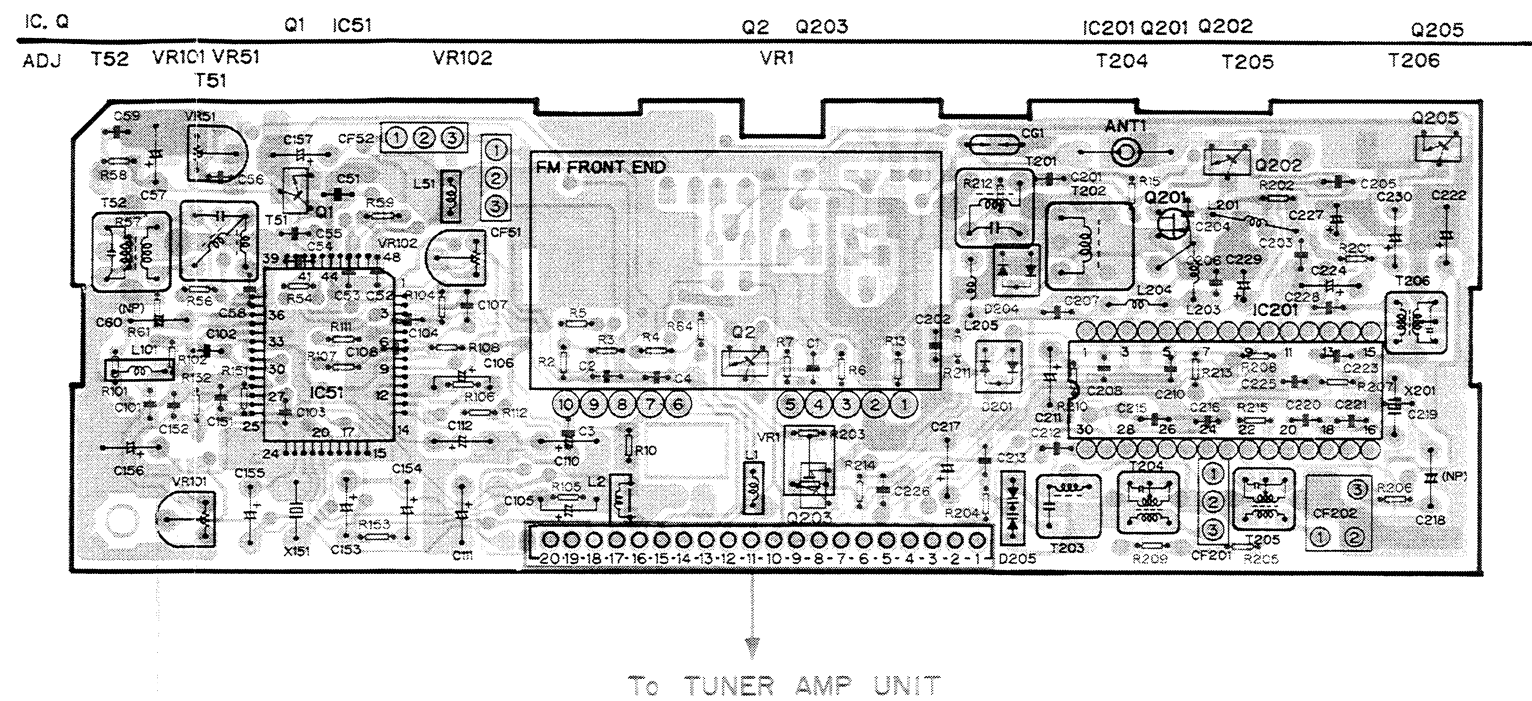


Fig. 58

12. CD MECHANISM MODULE EXPLODED VIEW

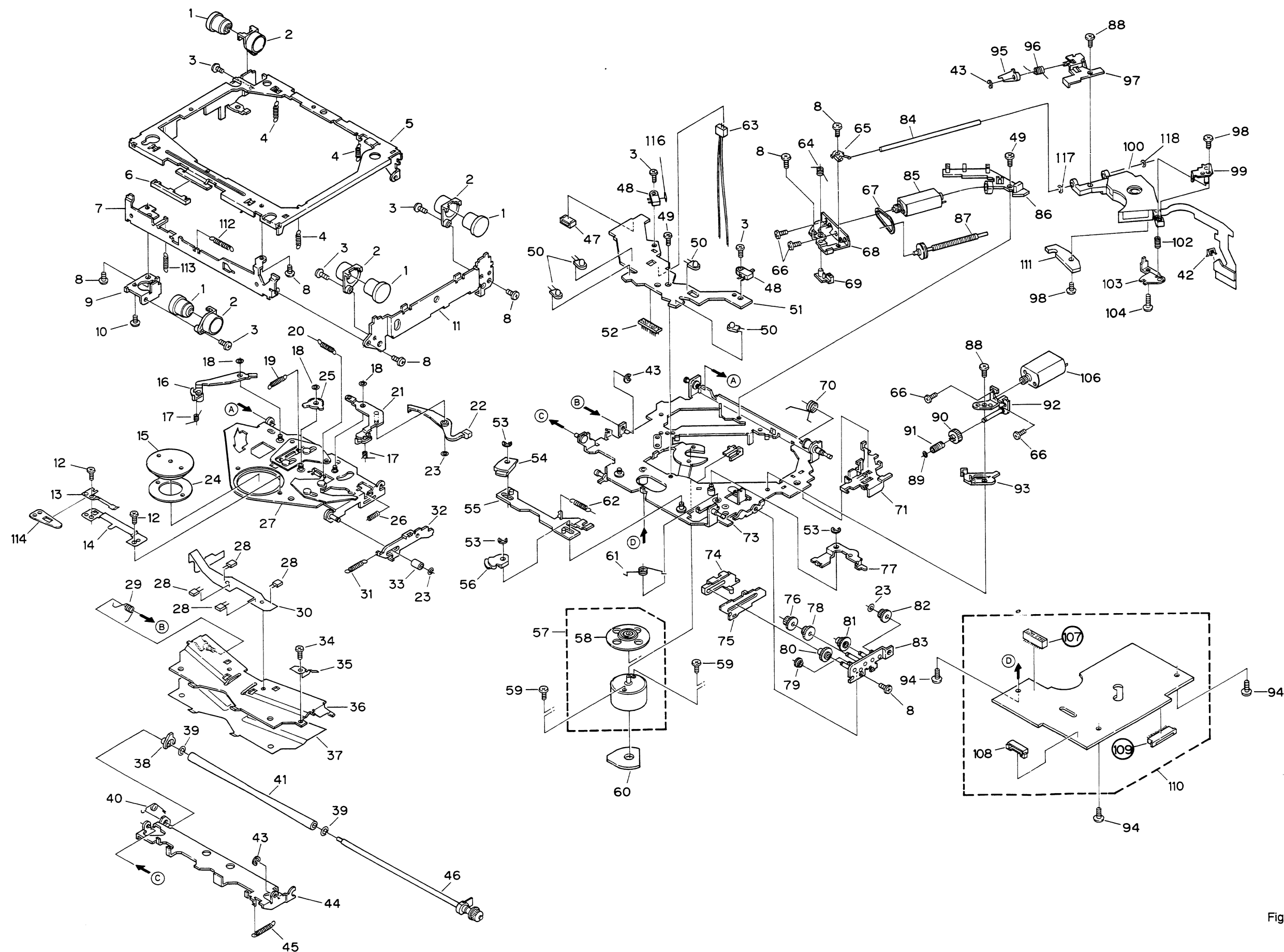


Fig. 59

• Parts List

NOTE:

- The parts marked with "◎" may need long time to supply and their supply is subject to refuse as the case may be.
- Because the parts with encircled number shown on the dismantling drawing are not spare parts, we are unable to supply them in principle.

Mark No.	Description	Part No.	Mark No.	Description	Part No.
1	Damper	CNV2882	41	Roller	CNV2225
2	Holder	CNV2863	42	Short Pin	CBL1010
3	Screw	CBA1004	43	Washer	YE15FUC
4	Spring	CBH1417	44	Arm	CNC3819
5	Frame	CNC3816	45	Spring	CBH1421
6	Guide	CNV2891	46	Gear Unit	CXA4265
7	Frame	CNC3835	47	Connector(4P)	CKS2088
8	Screw	BMZ20P030FMC	48	Switch(S1,2)	CSN1012
9	Bracket	CNC3818	49	Screw	CBA1077
10	Screw	BMZ20P040FNI	50	LED(D1-4)	BR4361F
11	Frame	CNC3817	51	Gathering P.C. Board	CNX1759
12	Screw	JFZ20P018FNI	52	Connector(16P)	CKS2064
13	Spring	CBL1131	53	Washer	YE20FUC
14	Bracket	CNC3830	54	Arm	CNV2884
15	Clamper	CNV2864	55	Lever Unit	CXA4269
16	Arm Unit	CXA4271	56	Arm	CNV2885
17	Spring	CBH1415	57	Motor(Spindle)	CXM1058
18	Washer	CBF1039	58	Support Wheel	CNV2859
19	Spring	CBH1418	59	Screw	HBA-258
20	Spring	CBH1419	60	P.C. Board	CNP2720
21	Arm Unit	CXA4272	61	Spring	CBH1414
22	Arm	CNV2876	62	Spring	CBH1424
23	Washer	CBF1038	63	Connector(2P)	CDE3369
24	Sheet	CNM3110	64	Spring	CBH1410
25	Gear	CNV2875	65	Spring	CBL1129
26	Spring	CBH1423	66	Screw	JFZ20P025FMC
27	Arm Unit	CXA4259	67	Belt	CNT1047
28	Photo-transistor	PT4800	68	Bracket	CNC3832
29	Spring	CBH1449	69	Holder	CNV2878
30	P.C. Board	CNP2718	70	Spring	CBH1413
31	Spring	CBH1420	71	Cover	CNV2889
32	Lever	CNC3828	72	Holder	CNV3023
33	Roller	CLA1936	73	Chassis Unit	CXA4258
34	Screw	JFZ20P018FNI	74	Lever	CNV2874
35	Spring	CBL1130	75	Lever	CNC3824
36	Arm Unit	CXA4263	76	Gear	CNV2871
37	Sheet	CNM3111	77	Arm	CNC3833
38	Holder	CNV2866	78	Gear	CNV2872
39	Washer	HBF-132	79	Gear	CNV2883
40	Spring	CBH1412	80	Gear	CNV2873

Mark No.	Description	Part No.	Mark No.	Description	Part No.
81	Gear	CNV2870	101	.....
82	Gear	CNV2869	102	Spring	CBH1422
83	Bracket Unit	CXA4261	103	Holder	CNC4306
84	Shaft	CLA2027	104	Screw	JGZ20P070FNI
85	Motor Unit(Carriage)	CXA4649	105	.....
86	Holder	CNV2888	106	Motor Unit>Loading)	CXA4267
87	Screw Unit	CXA4266	107	Connector(CN352)	CKS2063
88	Screw	CBA1082	108	Connector(CN752)	CKS2149
89	Washer	CBF1054	109	Connector(CN351)	CKS2121
90	Gear	CNV2892	110	Control Unit(WG)	CWX1455
91	Gear	CNV2868		Control Unit(EW,X1B)	CWX1375
92	Bracket Unit	CXA4262	111	Weight	CNC4116
93	Holder	CNV2887	112	Spring	CBH1458
94	Screw	PMSZ6P040FMC	113	Spring	CBH1457
95	Rack	CNV2879	114	Spacer	CNM3315
96	Spring	CBH1411	◎ 115	CD Mechanism Unit	CXA4260
97	Bracket Unit	CXA4264	116	Cushion	CNT1057
98	Screw	JFZ17P030FNI	117	Washer	CBF1055
99	Holder Unit	CXA4606	118	Cushion	CNT1058
100	PU Unit	CGY1020			

13. CHASSIS EXPLODED VIEW

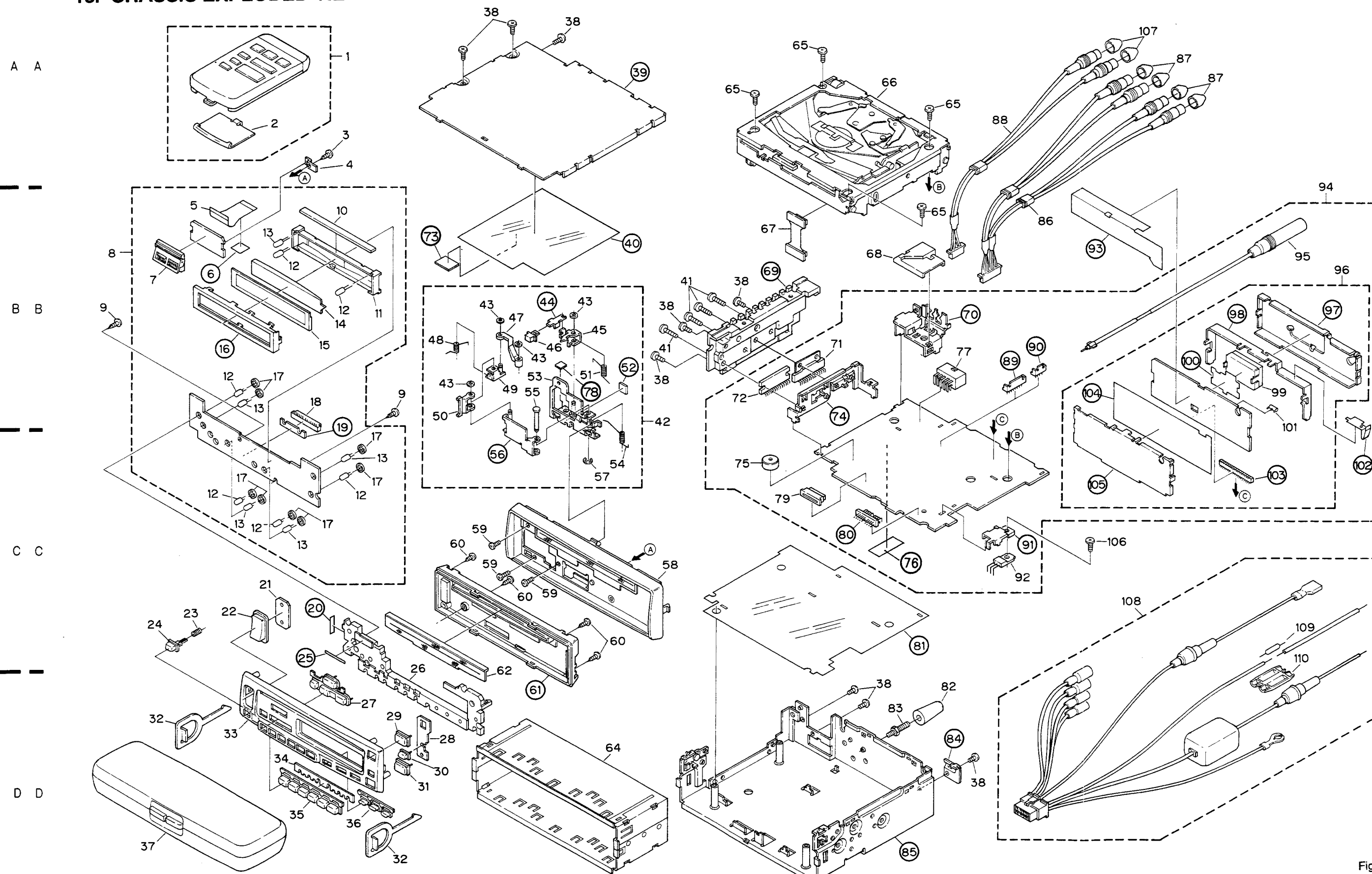


Fig. 60

•Parts List(DEH-790SDK/WG)

A	Mark No.	Description	Part No.	Mark No.	Description	Part No.
	1	Remote Control Assy	CXA4436	41	Screw	BMZ30P140FMC
	2	Battery Cover	CNS2197	42	Detach Unit	CXA4444
	3	Screw	BPZ20P050FMC	43	Washer	WT22D050D050
	4	Holder	CNC4098	44	Lever	CNC3712
	5	P.C. Board	CNP2647	45	Arm	CNC3711
	6	Plate	CNM3367	46	Button	CAC2878
	7	Socket	CKS2087	47	Arm	CNV2743
	8	Display Unit	CWX1424	48	Spring	CBH1404
	9	Screw	BPZ20P080FMC	49	Arm Unit	CXA4445
	10	Connector	CNV2952	50	Arm	CNV2745
	11	Holder	CNV2950	51	Spring	CBH1405
	12	Lamp	CEL-147	52	Spacer	CNM3391
	13	Lamp	CEL1013	53	Bracket Unit	CXA4053
	14	Lens	CNV2951	54	Spring	CBH1403
	15	LCD	CAW1143	55	Shaft	CLA1906
	16	Holder	CNC3931	56	Holder Unit	CXA4697
	17	Bush	CNV-724	57	Washer	YE15FUC
	18	Plug	CKS2360	58	Grille Unit	CXA4634
	19	Spacer	CNM3379	59	Screw	BMZ20P040FZK
	20	Seal	CNM3345	60	Screw	BPZ20P100FZK
	21	Cushion	CNM3416	61	Cover	CNS2202
	22	Button(VOL)	CAC3093	62	Cover Unit	CXA4483
	23	Spring	CBH1407	63	.....
	24	Button(Detach)	CAC3152	64	Holder	CNC1484
	25	Spacer	CNM3351	65	Screw	BMZ26P040FMC
	26	Lens	CNV2955	66	CD Mechanism Module	CXK2511
	27	Button(LOUD, REL, TUN)	CAC3088	67	Connector Unit	CXA4721
	28	Cushion	CNM3255	68	Holder	CNV2956
	29	Button(EJECT)	CAC3094	69	Heat Sink	CNR1202
	30	Button(SDK)	CAC3306	70	Bracket	CNC3930
	31	Button(SOURCE)	CAC3095	71	IC(IC551)	HA13139
	32	Handle	CNC1631	72	IC(IC951)	PA2019A
	33	Grille Unit	CXA4357	73	Spacer	CNM3415
	34	Cushion	CNM3413	74	Holder	CNC3708
	35	Button(1—6)	CAC3092	75	Buzzer	CPV1010
	36	Button(BSM, CLOCK)	CAC3089	76	Spacer	CNM3414
	37	Case	CNS2269	77	Connector	CKM1090
	38	Screw	BMZ30P050FMC	78	Spacer	CNM3394
	39	Case	CNB1458	79	Connector	CKS1534
	40	Insulator	CNM3193	80	Connector	CKS2500

Mark No.	Description	Part No.	Mark No.	Description	Part No.
81	Insulator	CNM3022	96	FM/AM Tuner Unit	CWE1256
82	Bush	CNV1917	97	Case	CNB1279
83	Screw	CBA1002	98	Holder	CNC2880
84	Holder	CNC3940	99	FM Front End	CWB1035
85	Chassis Unit	CXA4363	100	Insulator	CNM2105
86	Cord	CDE3475	101	Antenna Jack	CKX1010
87	Cap	CNW-829	102	Plate	CNC3382
88	.....		103	Plug	CKS1735
89	Plug	CKS1228	104	Insulator	CNM2391
90	.....		105	Case	CNB1280
91	Holder	CNC3849	106	Screw	PMS20P060FMC
92	Transistor(Q968)	ZSD1944	107	.....
93	.....		108	Cord	CDE3480
94	Tuner Amp Unit	CWX1414	109	Resistor	RS1/2P102JL
95	Antenna Cable	CDH1129	110	Cap	CNS1472

•The DEH-790/EW, X1B, DEH-690SDK/WG and DEH-690/EW, X1B Parts Lists enumerate the parts which differ from those enumerated in the DEH-790SDK/WG Parts List only.
The parts other than those enumerated in the former are identical with those in the latter, to which you are requested to refer, accordingly.
The DEH-790SDK/WG Parts List is given on page 105.

	DEH-790SDK /WG	DEH-790/EW DEH-790/X1B	DEH-690SDK /WG	DEH-690/EW DEH-690/X1B
Mark No. Description	Part No.	Part No.	Part No.	Part No.
1 Remote Control Assy	CXA4436	CXA4436	.....	.....
2 Battery Cover	CNS2197	CNS2197	.....	.....
8 Display Unit	CWX1424	CWX1425	CWX1427	CWX1428
30 Button(SDK)	CAC3306	.....	CAC3306	.....
33 Grille Unit	CXA4357	CXA4358	CXA4636	CXA4635
37 Case	CNS2269	CNS2269	.....	.....
66 CD Mechanism Module	CXK2511	CXK2500	CXK2511	CXK2500
70 Bracket	CNC4344	CNC4344	CNC4345	CNC4345
85 Chassis Unit	CXA4363	CXA4677	CXA4633	CXA4677
86 Cord	CDE3475	CDE3475	.....	.....
87 Cap	CNW-829	CNW-829	.....	.....
88 Cord	.....	.....	CDE3476	CDE3476
89 Plug	CKS1228	CKS1228	.....	.....
90 Plug	.....	.....	CKS1224	CKS1224
93 Insulator	.....	CNM3341	.....	CNM3341
94 Tuner Amp Unit	CWX1414	CWX1415	CWX1418	CWX1419
96 FM/AM Tuner Unit	CWE1256	CWE1228	CWE1256	CWE1228
97 Case	CNB1279	.....	CNB1279	.....
103 Plug	CKS1735	CKS1628	CKS1735	CKS1628
104 Insulator	CNM2391	.....	CNM2391	.....
105 Case	CNB1280	.....	CNB1280	.....
107 Cap	.....	.....	CNW-829	CNW-829
108 Cord	CDE3480	CDE3556	CDE3480	CDE3556

14. PACKING METHOD

*:Non spare part

Mark No.	Description	DEH-790SDK/WG Part No.	DEH-790/EW Part No.	DEH-790/X1B Part No.	DEH-690SDK/WG Part No.	DEH-690/EW Part No.	DEH-690/X1B Part No.
1	Carton	CHG2168	CHG2170	CHG2195	CHG2169	CHG2171	CHG2194
2-1	Owner's Manual	CRD1544	CRD1545	CRD1547	CRD1544	CRD1545	CRD1547
2-2	Installation Manual	CRD1546	CRD1546	.....	CRD1546	CRD1546	.....
* 2-3	Card	CRY-062	CRY-062	CRY-063	CRY-062	CRY-062	CRY-063
* 2-4	Caution Card	CRN1007	.....	.....	CRN1007	.....	.....
* 2-5	Passport	CRY1013	.....	.....	CRY1013	.....	.....
2-6	Polyethylene Bag	E36-618	.....	.....	E36-618	.....	.....
3	Cord	CDE3480	CDE3556	CDE3556	CDE3480	CDE3556	CDE3556
4	Case	CNS2269	CNS2269	CNS2269	.....	.....	.....
5	Styrofoam(R)	CHP1463	CHP1463	CHP1463	CHP1463	CHP1463	CHP1463
6	Styrofoam(L)	CHP1462	CHP1462	CHP1462	CHP1462	CHP1462	CHP1462
7	Cover	CEG1092	CEG1092	CEG-173	CEG1092	CEG1092	CEG-173
8	Remote Control Assy	CXA4436	CXA4436	CXA4436	.....	.....	.....
* 9-1	Battery	CEX1006	CEX1006	CEX1006	.....	.....	.....
9-2	Fastener(Rough)	CNM3249	CNM3249	CNM3249	.....	.....	.....
9-3	Fastener(Soft)	CNM3250	CNM3250	CNM3250	.....	.....	.....
* 9-4	Polyethylene Bag	CEG-127	CEG-127	CEG-127	.....	.....	.....
10	Accessory Assy	CEA1692	CEA1692	CEA1692	CEA1692	CEA1692	CEA1692

10	Accessory Assy	CEA1692
Mark No.	Description	Part No.
* 10-1	Screw Assy	CEA1105
10-1-1	Screw(×1)	CBA-102
10-1-2	Screw(×1)	CBA1002
10-1-3	Nut(×2)	NF50FMC
*10-1-4	Polyethylene Bag	CEG-127
10-2	Handle(×2)	CNC1631
10-3	Strap	CNF-111
10-4	Bush	CNV1917
* 10-5	Polyethylene Bag	CEG-158

2-1 Owner's Manual

Part No.	Model	Language
CRD1544	DEH-790SDK/WG DEH-690SDK/WG	French, German
CRD1545	DEH-790/EW DEH-690/EW	English, French, German, Spanish, Swedish, Norwegian, Dutch, Italian, Finnish, Portuguese
CRD1547	DEH-790/X1B DEH-690/X1B	English, French, Italian

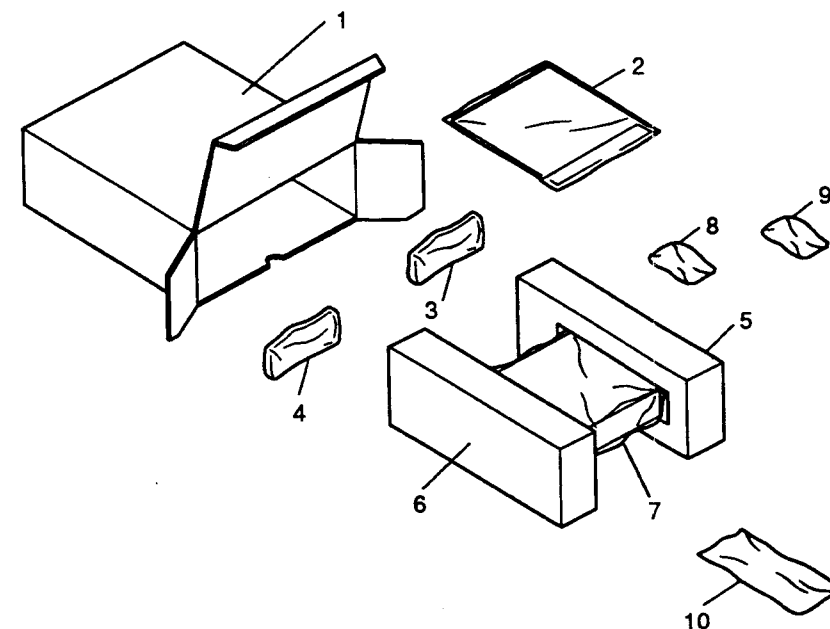


Fig. 61

15. ELECTRICAL PARTS LIST

NOTE:

- Parts whose parts numbers are omitted are subject to being not supplied.
- The part numbers shown below indicate chip components.

Chip Resistor

RS1/□S□□□□J,RS1/□□S□□□J

Chip Capacitor (except for CQS.....)

CKS....., CCS....., CSZS.....

• DEH-790SDK

Unit Number :
Unit Name : FM/AM Tuner Unit

MISCELLANEOUS

-----Circuit Symbol & No. Part	Name-----	Part No.
IC 51		PA4012B
IC 201		PA4017
Q 1		2SB709
Q 2		DTC124EK
Q 51		DTA114TK
Q 201		2SK435
Q 202		2SC2412K
Q 203 205		DTC124EK
D 201 204		MA157-MR
D 205		SVC203-M
L 1 51	Inductor	CTF1241
L 2	Inductor	CTF1086
L 101	Inductor	CTF1126
L 201	Inductor	CTF1084
L 203	Ferri-Inductor	LAU220K
L 204	Ferri-Inductor	LAU470K
L 205	Ferri-Inductor	LAU4R7K
T 51	Coil	CTE1021
T 52	Coil	CTE1022
T 201	Coil	CTB1020
T 202	Coil	CTB1004
T 203	Coil	CTB1040
T 204	Coil	CTE1037
T 205	Coil	CTE1038
T 206	Coil	CTE1039
CG 1		DSP-201M
CF 51 52	Ceramic Filter	CTF-182
CF 201	Ceramic Filter	CTF1041
CF 202	Filter	CTF1085
X 151	Ceramic Resonator	CSS1055
X 201	Crystal Resonator	CSS1014
VR 1	Semi-fixed 10kΩ (B)	CCP1019
VR 51 101 102	Semi-fixed 33kΩ (B) FM Front End	VRTB4VS333 CWB1035
RESISTORS		
R 2 7		RS1/10S223J
R 3		RS1/10S124J
R 4		RS1/10S682J
R 5 13		RS1/10S0R0J
R 6 59 101		RS1/10S331J
R 10		RS1/10S560J
R 15		RS1/10S0R0J
R 54		RS1/10S472J
R 56 58		RS1/10S393J
R 57		RS1/10S562J
R 60		RS1/10S473J
R 61 105		RS1/10S332J
R 64		RS1/10S222J
R 102		RS1/10S822J
R 104		RS1/10S563J

-----Circuit Symbol & No. Part	Name-----	Part No.
R 106		RS1/10S333J
R 107		RS1/10S102J
R 108		RS1/10S104J
R 111		RS1/10S123J
R 112		RS1/10S684J
R 151 152 153		RS1/10S222J
R 201		RS1/10S220J
R 202		RS1/10S681J
R 203 206 214		RS1/10S222J
R 204 213		RS1/10S473J
R 205 209		RS1/10S470J
R 207		RS1/10S822J
R 208 211 212		RS1/10S103J
R 210		RS1/10S682J
R 215		RS1/10S153J
CAPACITORS		
C 1		CKSQYB102K50
C 2 3 104		CKSQYB103K50
C 4 59		CKSQYF473Z25
C 51		CKSQYF473Z25
C 52 53		CKSQYB223K25
C 54		CCSQL101J50
C 55		CKSQYB102K50
C 56		CKSQYF104Z25
C 57		CSZAR33K35
C 58		CCSQCH060D50
C 60		CEALNP100M6R3
C 101		CKSQYB822K50
C 102		CKSQYB682K50
C 103		CKSQYB392K50
C 105		CEA2R2M50LL
C 106		CEA4R7M35LL
C 107 108		CKSQYB222K50
C 110		CEA010M50LL
C 111		CEA100M16LL
C 112		CEA0R1M50LL
C 151 152		CKSQYB273K25
C 153		CSZAR47M35L
C 154 155 156		CEA3R3M50LL
C 157		CEA101M10LS
C 201 223 228		CKSQYB103K25
C 202 212		CKSQYB332K50
C 203 215 216 219 226		CKSQYF473Z25
C 204 208 210		CKSQYB223K25
C 205		CCSQCH220J50
C 206 207		CCSQCH820J50
C 211		CEA2R2M50LL
C 213		CCSQCH390J50
C 217		CEA100M16LL
C 218		CEA2R2M35NPLL
C 220		CCSQCH430J50

-----Circuit Symbol & No. Part	Name-----	Part No.
C 221		CCSQCH100D50
C 222		CSZA010K35L
C 224		CEA470M16LL
C 225		CKSQYB333K25
C 227		CEA4R7M35LS
C 229		CEA470M16LS
C 230		CEA220M16LL
Unit Number :		
Unit Name : Control Unit		
MISCELLANEOUS		
IC 351		UPC1347GS
IC 601		UPD6374GH
IC 602		RC4558M
IC 651		PA3026
IC 653		M5218FP
IC 701		UPD6375GC
IC 702		TC9237F-PK
IC 703		TA2009F
IC 751		PD5156B
IC 752		MB3854PF
Q 351		2SB1260
Q 601		2SB709A
Q 651		2SB1184F5
Q 652		2SB1184F5
Q 654 705		DTC114EK
Q 701 702		DTC323TK
Q 703		DTC114EK
Q 704		DTA114EK
Q 752		DTA114EK
Q 753		DTA114EK
Q 754		DTC114EK
Q 755		2SD1760F5
Q 756		2SD1030
D 651		SC016-2
D 652		SC016-2
D 701		MA151WA-MN
D 751		MA151A-MA
D 757		HZM6R8NB2
D 758		MA151A-MA
L 601 602 603 604 751	Inductor	CTF1082
L 701	Inductor	CTF1082
TH 752	Thermister	CCX1007
X 701	Crystal Resonator	CSS1067
X 751		CSS1084
VR 351		CCP1156
VR 352 355		CCP1158
VR 353 354		CCP1150
VR 356		CCP1156
RESISTORS		
R 352 372		RS1/16S472J
R 353		RS1/16S623J
R 354 757 758 779		RS1/16S473J
R 355		RS1/16S122J
R 356		RS1/16S683J
R 357		RS1/16S683J
R 358		RS1/16S332J
R 359		RS1/16S332J
R 360		RS1/16S684J
R 361		RS1/16S153J
R 364		RS1/16S102J
R 365		RS1/16S103J
R 371 373		RS1/16S223J
R 374		RS1/16S912J

-----Circuit Symbol & No. Part	Name-----	Part No.
R 375 377 713		RS1/16S102J
R 379		RS1/16S513J
R 380		RS1/16S104J
R 381		RS1/16S133J
R 382		RS1/16S133J
R 601 602 603 604 605 607 610		RS1/16S103J
R 606		RS1/16S224J
R 609		RS1/16S102J
R 611 612 665		RS1/16S102J
R 613		RS1/16S102J
R 614		RS1/16S472J
R 615		RS1/16S472J
R 616		RS1/16S102J
R 651 653 701 702 706 711 712 764		RS1/16S102J
R 652		RS1/16S162J
R 654		RS1/16S162J
R 655		RS1/16S752J
R 656		RS1/16S362J
R 657		RS1/16S162J
R 658		RS1/16S102J
R 663		RS1/10S181J
R 664 753 755		RS1/16S103J
R 669 703 797		RS1/16S103J
R 670		RS1/10S151J
R 675		RS1/16S913J
R 676		RS1/16S913J
R 677 681		RS1/16S0R0J
R 679		RS1/16S102J
R 680		RS1/16S0R0J
R 683		RS1/16S0R0J
R 684		RS1/16S102J
R 707 708		RS1/16S223J
R 715		RS1/16S0R0J
R 717		RS1/16S301J
R 719 789		RS1/16S0R0J
R 721		RS1/16S472J
R 722		RS1/16S162J
R 724		RS1/10S1R0J
R 725		RS1/16S472J
R 751		RS1/10S1R0J
R 752		RS1/16S183J
R 754 776		RS1/16S472J
R 756 771 772 773		RS1/16S222J
R 765 793		RS1/16S102J
R 766		RS1/16S473J
R 767 768 769 770		RS1/16S104J
R 774		RS1/16S102J
R 775		RS1/16S104J
R 778		RS1/16S103J
R 780		RS1/16S104J
R 781 782		RS1/16S362J
R 783 784 785 786 787		RS1/16S681J
R 788		RS1/16S102J
R 791 792		RS1/16S391J
R 794		RS1/16S151J
R 799		RS1/10S1R5J
CAPACITORS		
C 351		CEV470M16
C 352		CKSQYB104K25
C 353 709		CEV101M6R3
C 354 355		CSZSR4R7M10
C 357 359 366		CKSRYB102K50
C 358		CKSRYB331K50
C 360		CKSRYB271K50
C 361		CCSRCH220J50
C 367		CKSYB154K25
C 368		CKSQYB104K25

111

-----Circuit Symbol & No. Part	Name-----	Part No.
R 976		RD1/4PM562J
R 977		RD1/4PS392JL
R 978		RS1/10S472J
R 979		RS1/10S560J
R 981		RS1/10S0R0J
R 999		RD1/4PS104JL
CAPACITORS		
C 451 453 469 502 508 511 527 531 753 877		CKSQYB103K25
C 452 470 952		CEA010M50LL
C 454 460 462 468 471 475 476 558 757 851		CEA100M16LL
C 455 467 472		CEA2R2M50LL
C 456 466		CKSQYB333K25
C 457 465 519 520		CCSQSL101J50
C 458 464		CKSQYB183K2K
C 459 463 882 883 884 885		CCSQSL221J50
C 461 474 513 515 518 759 957 961 963 966		CKSQYB473K25
C 473 525		CEA470M16LL
C 477 478 516 752		CKSQYB102K50
C 501 514		CKSQYB223K50
C 503 504 505		CKSQYB104K25
C 506 507 754 967 968		CKSQYB104K25
C 509		CCSQCH330J50
C 510		CEALNP4R7M16
C 512		CEAR47M50LL
C 517		CKSQYB561K50
C 522 523		CCSQCH270J50
C 524		CEA4R7M35LL
C 526		CKSQYB683K25
C 528		CEA220M16LL
C 530		CEAR33M50LL
C 551 552 553 554		CQMA104K50
C 555 556		CKSQYB471K50
C 751		CKSQYB471K50
C 755		CCSQCH150J50
C 756		CKSQYB104K25
C 852 853 854 855 865 866 875 876 976		CEA100M16LL
C 856		CEA100M25LL
C 859 860		CCSQCH220J50
C 887		CEA100M16LL
C 953	3300 μ F/16V	CCH1125
C 954		CKSQYB104K25
C 956		CKSQYB472K50
C 960 962 964 969		CEA101M10LL
C 965		CEA470M25LL
C 970 973 974		CKSQYB473K25
C 972	1000 μ F/16V	CCH1003
C 975		CEHAQ221M10
C 978		CKSQYB473K50
C 979		CEA101M10LS
C 980		CEA101M10LS

Unit Number :
Unit Name : Display Unit

MISCELLANEOUS

IC 901		LC7582E
IC 903		RS-20
D 901 902 904 905		MA153-MC
S 901 902 903 904 906 908 909 910 911 912		CSG1041
S 913 914 916 917 918 919 920 922	Switch	CSG1041
IL 901 902 909 910 911 912	Lamp 14V40mA	CEL-147
IL 904 905 906 907 908	Lamp 14V40mA	CEL1013
	LCD	CAW1143

-----Circuit Symbol & No. Part	Name-----	Part No.
RESISTORS		
R 901		RS1/8S103J
R 902 904 905		RS1/8S103J
R 907		RS1/10S121J
R 910 911		RS1/10S0R0J
R 914 918		RS1/10S104J
R 925 930 935		RS1/10S162J
R 926 931 936		RS1/10S242J
R 927 932 937		RS1/10S392J
R 928 933 938		RS1/10S822J
R 929 934 939		RS1/10S303J
R 940		RS1/8S163J
CAPACITORS		
C 901		CEV470M6R3
C 903		CKSQYF103Z50
C 906		CKSQYF104Z25
C 907		CCSQCH301J50
C 912		CKSYF224Z25
Unit Number :		
Unit Name :	Switch P.C.Board	
D 1 2 3 4		BR4361F
M 1	Motor(Spindle)	CXM1058
M 2	Motor Unit(Carriage)	CXA4649
M 3	Motor Unit>Loading)	CXA4267
S 1 2	Switch(Home,Clamp)	CSN1012
Unit Number :		
Unit Name :	Detector P.C.Board	
P 1 2 3 4	PhotoTransistor	PT4800
MiscellaneousParts List		
	PU Unit	CGY1020

●Tuner Amp Unit

Circuit Symbol & No.	DEH-790SDK/WG	DEH-790/X1B DEH-790/EW	DEH-690SDK/WG	DEH-690/X1B DEH-690/EW
IC 502 Q 501 Q 853 854 Q 857 858	KHA172 2SC2712 2SD601A 2SD1781K	..... ..... ..... 2SD1781K	KHA172 2SC2712 2SD601A.....	....................
X 502 R 501 R 502 R 523 R 524	CSS1061 RS1/10S684J RS1/10S102J RS1/10S222J RS1/10S473J	..... ..... ..... ..... .....	CSS1061 RS1/10S684J RS1/10S102J RS1/10S222J RS1/10S473J	.........................
R 562 R 791 R 794 R 796 R 799	RS1/10S0R0J RS1/10S473J RS1/10S0R0J .....	..... RS1/10S473J RS1/10S0R0J	RS1/10S0R0J RS1/10S473J RS1/10S473J ..... .....	..... ..... ..... RS1/10S0R0J RS1/10S0R0J
R 877 R 878 R 879 880 R 893 894 R 897 898	RS1/10S102J RD1/4PS102JL RS1/10S223J RS1/10S222J RS1/10S222J	RS1/10S102J RD1/4PS102JL RS1/10S223J RS1/10S222J	..... ..... ..... RS1/10S222J.....	.........................
C 514 C 519 C 524 C 525 C 526 C 527	CKSQYB223K50 CCSQSL101J50 CEA4R7M35LL CEA470M16LL CKSQYB683K25 CKSQYB103K25	..... CCSQSL221J50	CKSQYB223K50 CCSQSL101J50 CEA4R7M35LL CEA470M16LL CKSQYB683K25 CKSQYB103K25	..... CCSQSL221J50
C 528 C 530 C 875 876 C 884 885 C 979	CEA220M16LL CEAR33M50LL CEA100M16LL CCSQSL221J50 CEA101M10LS	..... ..... CEA100M16LL CCSQSL221J50 CEA101M10LS	CEA220M16LL CEAR33M50LL CEA101M10LL	..... ..... ..... ..... CEA101M10LL

●Display Unit

Circuit Symbol & No.	DEH-790SDK/WG	DEH-790/X1B DEH-790/EW	DEH-690SDK/WG	DEH-690/X1B DEH-690/EW
IC 903 D 905 S 912 R 901 R 907	RS-20 MA153-MC CSG1041 RS1/8S103J RS1/10S121J	RS-20 MA153-MC RS1/8S103J RS1/10S121J	..... ..... CSG1041..........	.........................
C 901 C 903	CEV470M6R3 CKSQYF103Z50	CEV470M6R3 CKSQYF103Z50	..........	..........

●Control Unit

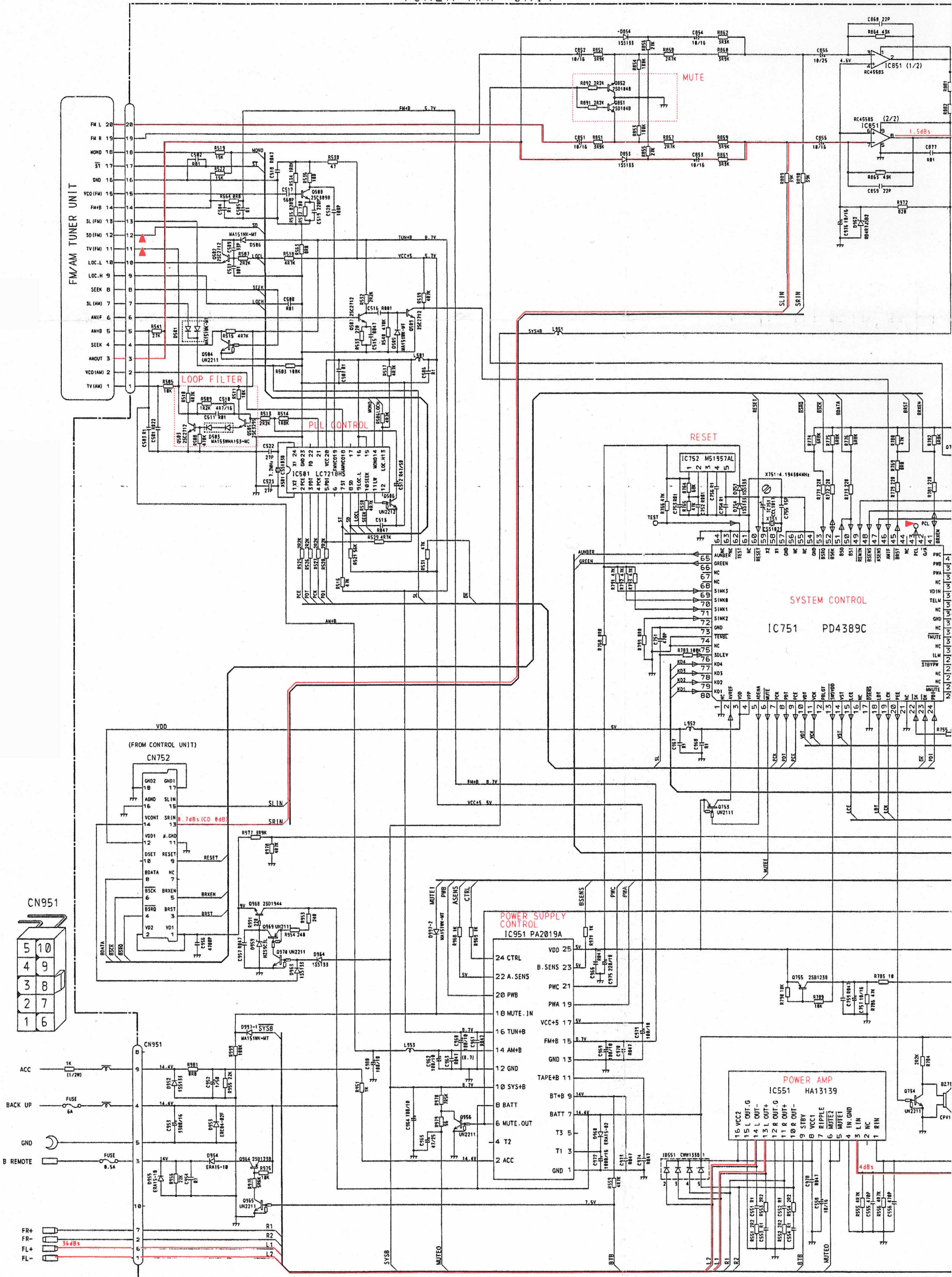
Circuit Symbol & No.	DEH-690SDK/WG DEH-790SDK/WG	DEH-690/X1B DEH-790/X1B DEH-690/EW DEH-790/EW
IC 705 C 729 R 714 R 715	..... ..... ..... RS1/16S0R0J	TC74HC74AF CKSQYB104K25 RS1/16S0R0J

●FM/AM Tuner Unit

Circuit Symbol & No.	DEH-690SDK/WG DEH-790SDK/WG	DEH-690/X1B DEH-790/X1B DEH-690/EW DEH-790/EW
Q 51 R 60	DTA114TK RS1/10S473J	..........

11.2 TUNER AMP UNIT AND DISPLAY UNIT (DEH-790/EW, X1B)

TUNER AMP UNIT



NOTE:

□ Symbol indicates a resistor.
No differentiation is made between chip resistors and discrete resistors.

⊞ Symbol indicates a capacitor.
No differentiation is made between chip capacitors and discrete capacitors.

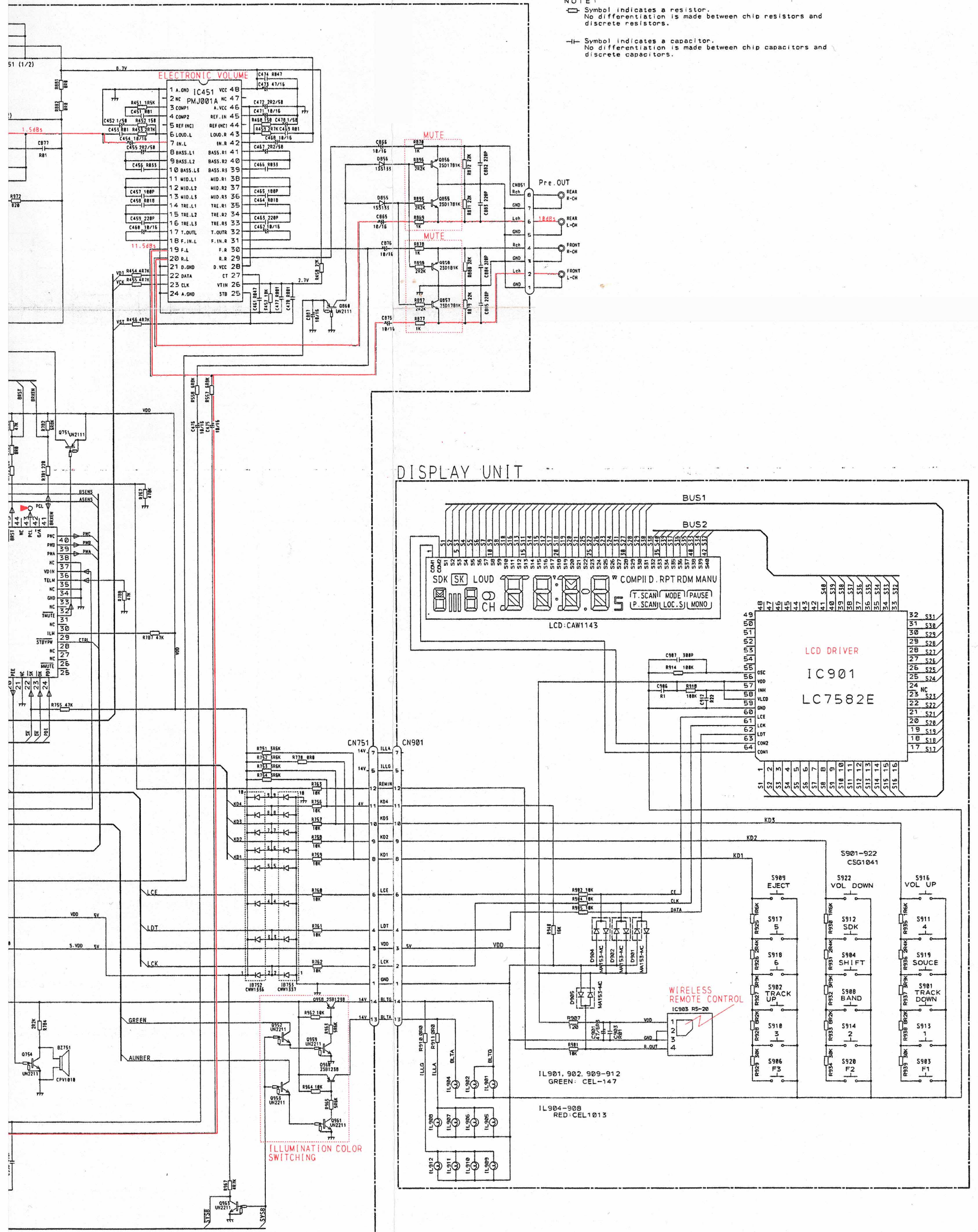
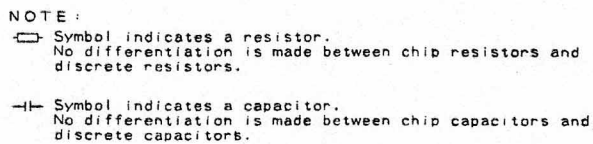


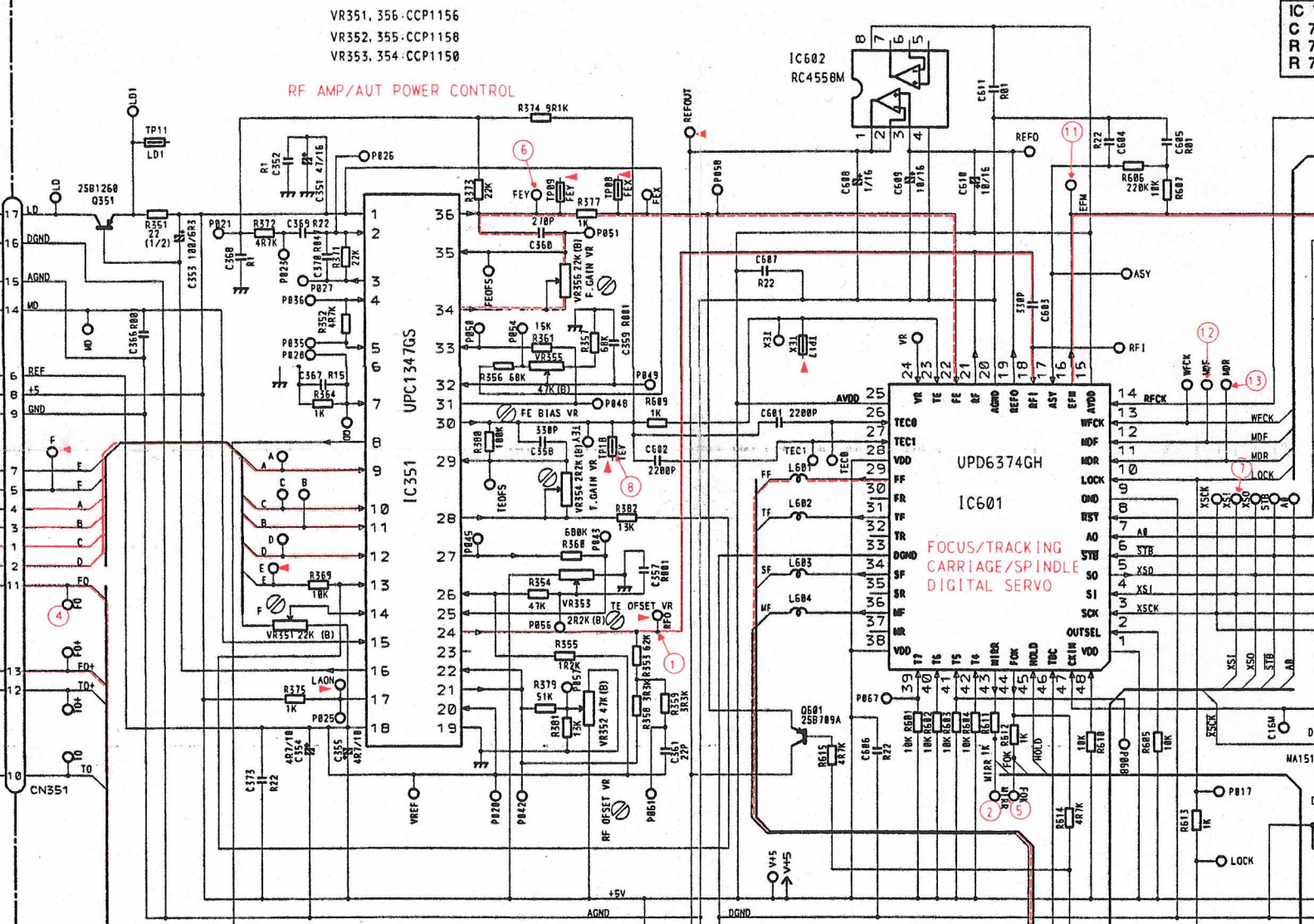
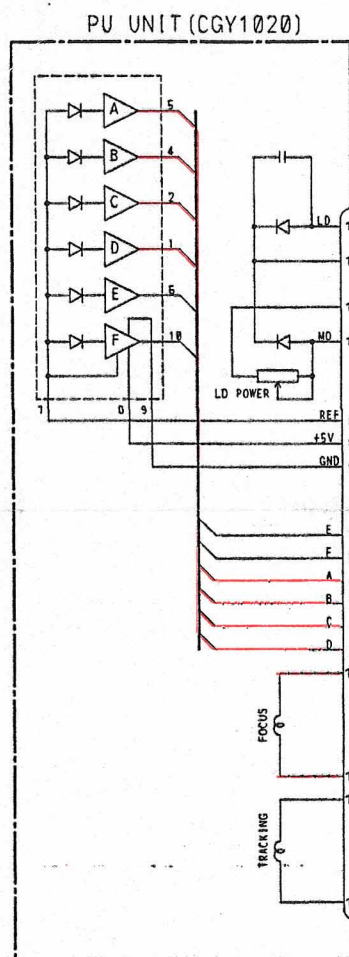
Fig. 46



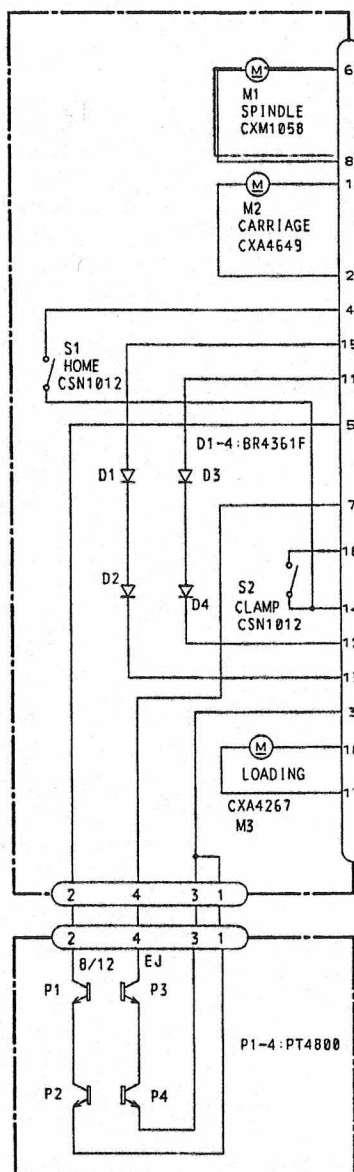
75

— SIGNAL LINE
 - - - FOCUS SERVO LINE

CONTROL UNIT



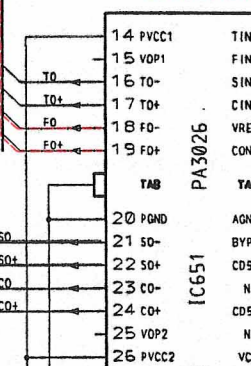
SWITCH P.C. BOARD



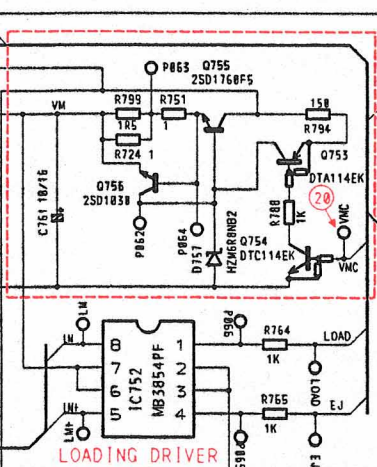
DETECTOR P.C. BOARD

SWITCHES:
 CD UNIT
 S751: PRE OUT/SOURCE SWITCH... PRE OUT-SOURCE
 MISCELLANEOUS
 S1: DSENSE SWITCH... ON-OFF
 The underlined indicates the switch position.

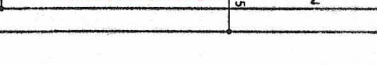
CD DRIVER



REGULATOR



LOADING DRIVER



NOTE:

□ Symbol indicates a resistor.
No differentiation is made between chip resistors and discrete resistors.

⊞ Symbol indicates a capacitor.
No differentiation is made between chip capacitors and discrete capacitors.

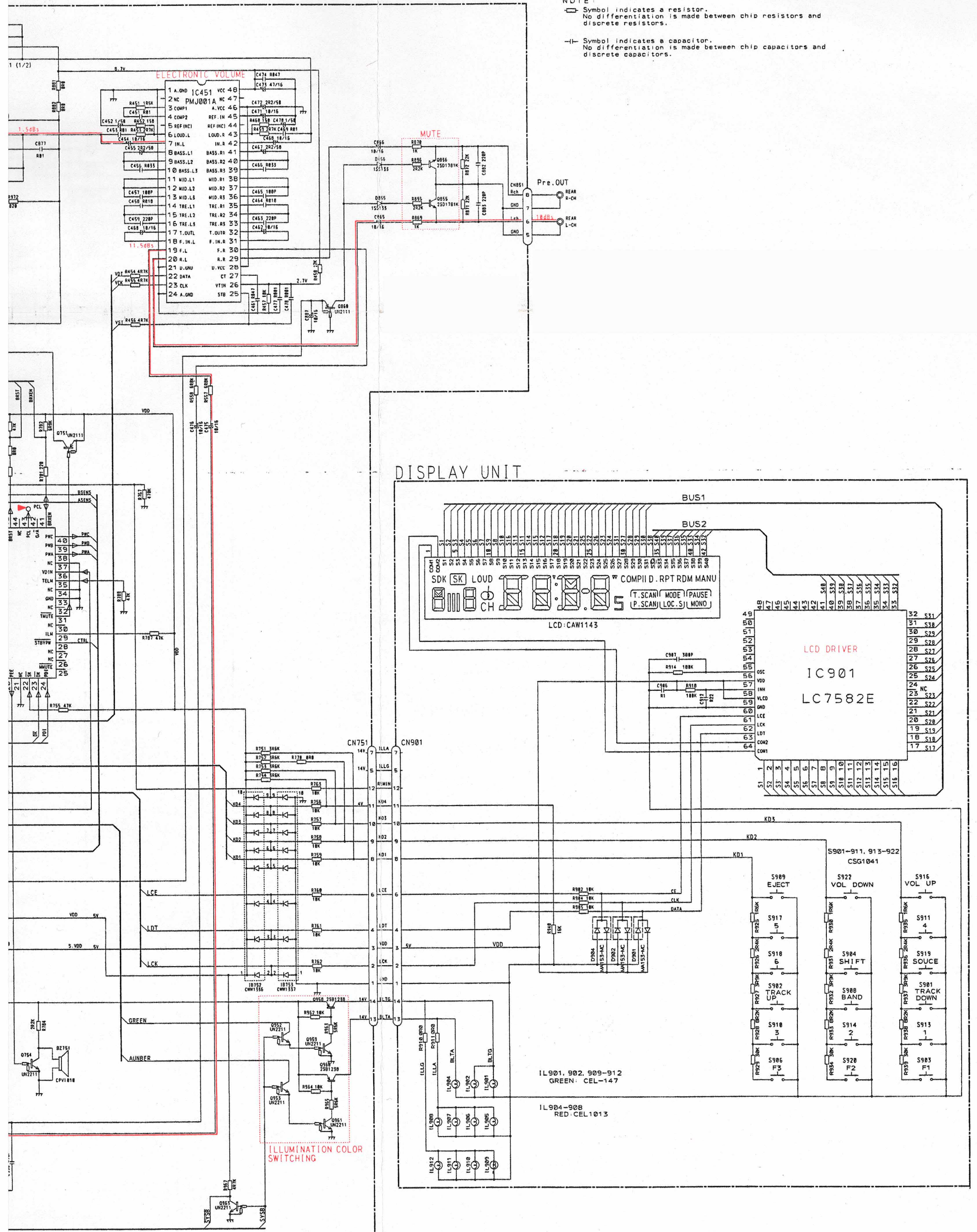
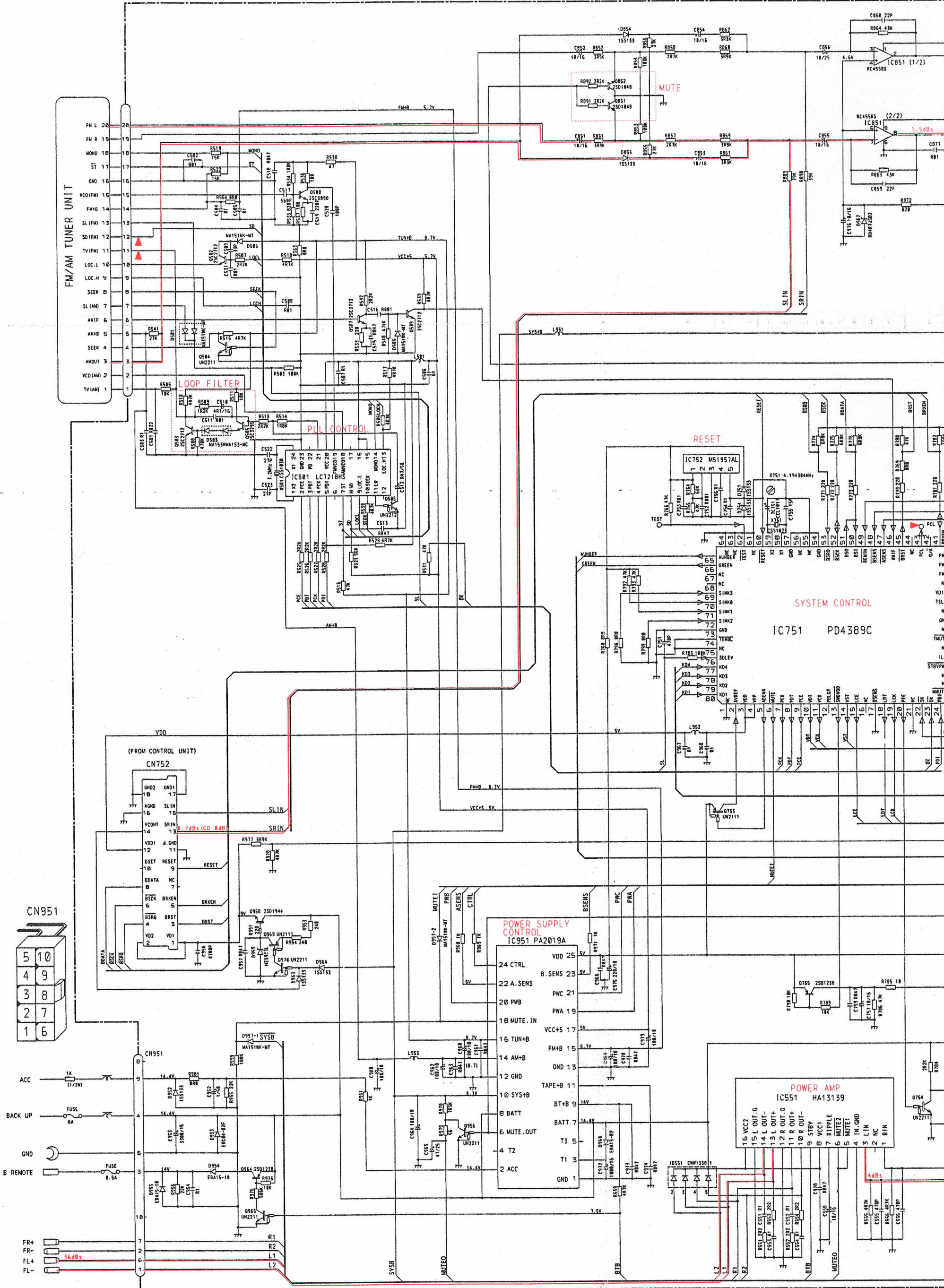


Fig. 51

11.4 TUNER AMP UNIT AND DISPLAY UNIT (DEH-690/EW, X1B)

TUNER AMP UNIT

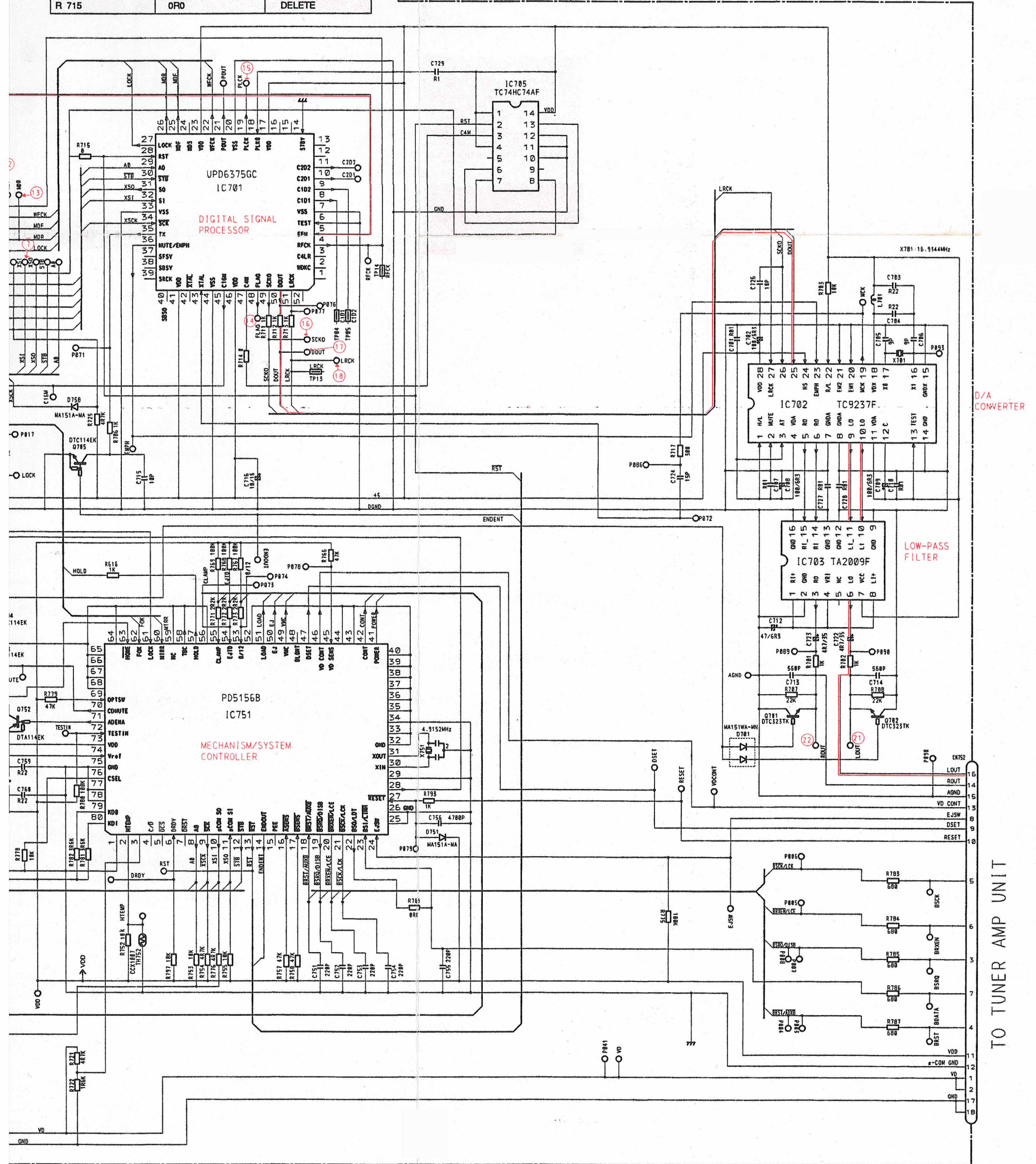


Circuit Symbol & No.	DEH-690SDK/WG DEH-790SDK/WG	DEH-690X1B DEH-790X1B DEH-690/EW DEH-790/EW
IC 705	DELETE	TC74HC74AF
C 729	DELETE	R1
R 714	DELETE	OR0
R 715	OR0	DELETE

NOTE:

- Symbol indicates a resistor.
No differentiation is made between chip resistors and discrete resistors.
- Symbol indicates a capacitor.
No differentiation is made between chip capacitors and discrete capacitors.

Decimal points for resistor and capacitor fixed values are expressed as:
2.2→2R2
0.022→R022



TO TUNER AMP UNIT

Fig. 54

Service Manual

PIONEER
The Art of Entertainment

• DEH-790SDK/WG



ORDER NO.
CRT1451

HIGH-POWER COMPACT DISC PLAYER WITH FM/AM TUNER

WG

DEH-690SDK
DEH-690

WG

EW, X1B

COMPACT
disc
DIGITAL AUDIO

- See the service manual DEH-M980/UC (CRT1450) for the CD mechanism description and circuit description.

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SAFETY INFORMATION (EW MODEL)

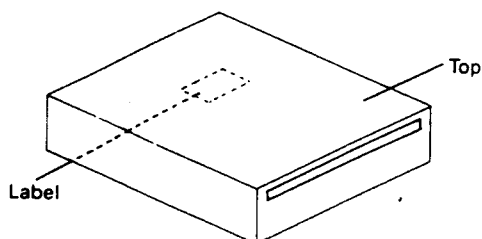
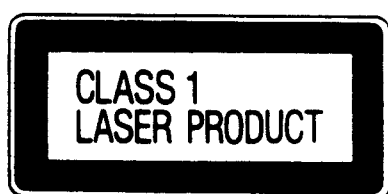
1. Safety Precautions for those who Service this Unit.

- Follow the adjustment steps(see pages 14 through 33)in the service manual when servicing this unit. When checking or adjusting the emitting power of the laser diode exercise caution in order to get safe, reliable results.

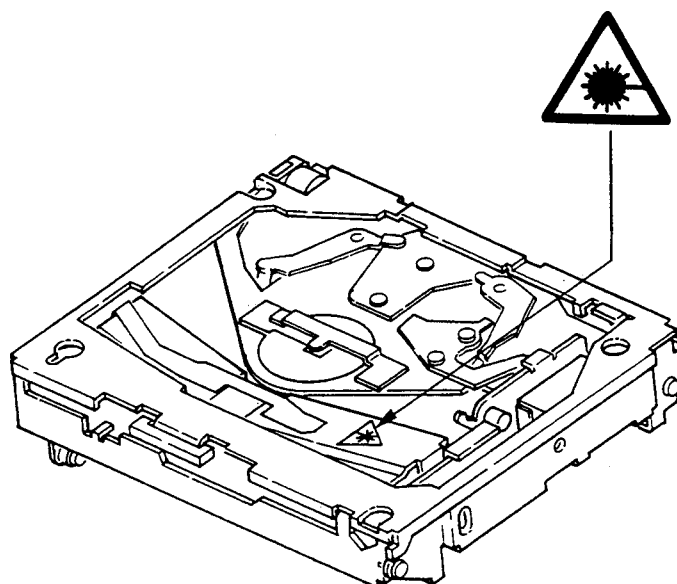
Caution:

- During repair or tests, minimum distance of 13cm from the focus lens must be kept.
- During repair or tests, do not view laser beam for 10 seconds or longer.

2. A "CLASS 1 LASER PRODUCT" label is affixed to the bottom of the player.



3. The triangular label is attached to the mechanism unit arm unit.



4. Specifications of Laser Diode

Specifications of laser radiation fields to which human access is possible during service.

- | | |
|---------------|--|
| Wavelength | = 785 nanometers |
| Radiant power | = 69.7 microwatts |
| | (Through a circular aperture stop having a diameter of 80 millimeters) |
| | 0.55 microwatts |
| | (Through a circular aperture stop having a diameter of 7 millimeters) |